The Builder.

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THE descriptions of the Temple of Solomon given in the Holy Writings, have exercised the ingenuity of many inquirers, and led to very dissimilar ideas of its actual arrangement and appearance. No two persons who have attempted to give a representation of the building have produced the same result, notwithstanding an apparent minuteness in the description. A few lines with a pencil by a taught hand, give us a more correct idea of a structure than the most laboured verbal account.

The First Book of Kings* and the Second Book of Chronicles,† show the enormous scale on which the erection was proceeded with. 80,000 men were set to hew in the mountains, 70,000 to bear burdens, and 3,300 to overlook and direct. Taking the cubit as 1·824 feet (although some writers show reasons why it should be less), the length of the body of the Temple, exclusive of the *sanctum*, may be called 73 feet, the width 36½ feet, or half the length; and the height 54½ feet, or half the length of the whole,—the *sanctum* being 36½ feet long (one-third the whole length), 36½ feet wide, and 36½ feet high. The porch extended the whole width of the building, and projected 18 feet 3 inches, or half the width, showing curious attention to proportions.

Villalpandus, a Spaniard, wrote an essay long ago, on the Temple, to prove that the orders, instead of being designed by the Greeks, were the invention of God himself for this building. Mr. Wilkins, in his "Antiquities of Magna Græcia," maintains that the form, proportions, and style of the architecture of Solomon's Temple were the types from which the Grecian Doric Temples were derived.

To-day we have a new writer on the subject, Mr. Edward C. Hakewill, who has published a handsome volume, under the title of "The Temple," the object of which is to show an extraordinary connection and intention in the forms of the Ark, the Tabernacle, and the Temple, and that the arrangement of the last was identical with that of the temples of Greece.‡

The tone of the book will be learnt from the first extract. The length of the ark was 300 cubits, the breadth 50 cubits, and the height 30 cubits.

"The average proportion of the temples of antiquity (says the writer) is, that the length should be twice the width. Here we have a building six times its width, *i. e.* three times the length of the ancient temple form.

The Tabernacle made by Moses was twice its breadth; the temple built by Solomon was also twice its breadth; and the universal practice of antiquity is in accordance with this rule. But in the two instances above mentioned there is another very curious coincidence; not only that their proportion is similar, but that in actual dimensions they coincide with each other, as well as with many of the heathen temples; and that these dimensions, as regards the breadth of the Tabernacle, and the height and breadth of Solomon's Temple, are the same as of the Ark, viz. 50 cubits wide, and 30 cubits high, leaving the whole excess of size to be in the length, which is exactly three times; the Temple of Solomon being 100 cubits long, the Tabernacle 100 cubits, and the Ark 300.

We have, therefore, in plan, a triple temple, or three temples placed end to end; a peculiarity of form not required by necessity of construction, or convenience, or strength, rather perhaps opposed to these, while its exact relative proportion with the two subsequent temples, each built by Divine authority and Divine inspiration, leaves no room for doubt that this peculiarity was not accidental, not without an object.

How quickly is an object suggested. Was it by this the Triune Jehovah should be typified? or did it shadow forth the three grand divisions or dispensations of time, in each of which that God should be honoured in a distinct and separate temple? or," &c.

With this, which is simply opinion, there is no arguing; but we point out that the dimensions he gives to the Temple are imaginary, based on the supposition that the length and width recorded in the Bible are the *internal* dimensions, while the height and the dimensions of the Ark are external.

A further idea of the extent to which the writer carries his ideas of symbolism may be obtained from the following paragraph:—

"As the Tabernacle, though perfect in itself, was a shadow of the Christian Church, so in the Temple is that shadow stronger as the event is nearer; and the extension of Christ's kingdom, faintly shown by the hanging over of the ceiling curtain one cubit on either side, leaving the width of the holy place twenty-eight cubits, is here, as it were, taken in, and the width made thirty cubits; but the length in both cases is the same: showing that, with a wider extension, the length or duration of the Christian Dispensation should be equivalent to the Jewish. The peristyle of the Tabernacle, protected by a curtain, was its only court, and contained within its narrow limits both the laver and the altar of sacrifice; but in the Temple this peristyle forms, as we have seen, merely the protecting shroud of the holy place, and the altar and the laver are outside; while all around, on every side, are extended courts, whose outer limit of 3,000 cubits square is made emblematic of the world-wide extent of Christ's kingdom, while it again points prophetically to the date of the second advent of the Messiah at 3,000 years from the Temple's dedication."

Our author, working on the written descriptions, produces the Temple as a Grecian Doric Temple, so precisely agreeing with the instructions of Vitruvius, that he cannot avoid thinking that the ancient writer in question must have had the Temple in his mind when he penned his principles.

Of the "chambers" built against the Temple, which have been difficulties in the way of other restorers, our author takes a new view. In the 6th chapter of Kings we have—"And against the walls of the house he built chambers round about, against the walls of the house round about, both of the temple and of the oracle; and he made chambers round about." "The nethermost chamber was five cubits broad, and the middle was six cubits broad, and the third was seven cubits broad; for without, in the walls of the house, he made narrowed rests round about, that the beams should not be fastened in the walls of the house." "The door for the middle chamber was in the right side of the house, and they went up with winding stairs into the middle chamber, and out of the middle into the third."

This has always been read to mean three tiers of chambers, one above the other, a reading which seems to us borne out by, amongst other points, the increasing *width* of the chambers, which suggests a thinning of the wall at different heights, forming a set-off (the "narrowed rests") for the beams to rest on.

Mr. Gwilt, in a brief chapter on the Temple, in his "Encyclopædia," says, "in the *interior*, the body of the Temple was surrounded by three tiers of chambers, to which there was an ascent by stairs."

Mr. Fergusson, in his "Historical Inquiry," says, "Around, certainly on three sides—I believe on all four—were what our translation calls, three stories of chambers. The word in the Septuagint, *Pleura*, cannot, by any ingenuity, be so translated; but it may mean galleries, which I believe they were, for anything more useless than a series of little rooms, six or seven feet square,* opening into one another, cannot well be conceived, or anything more unlike what we know of in other Temples: but as a *three-storied peristyle* (he suggests) it might be made quite as ornamental as those with only a single range of pillars of the Greeks, and might serve the same purpose, whatever that was. If they were chambers (he continues), they were in fact only closed galleries."

Mr. Hakewill adopts a different reading,—will not hear of the chambers one over the other, or of any chambers at all,—but considers that the description applies to a continued peristyle round three sides of the building, of a different width on each side.

Mr. Hakewill dates the Parthenon about 1150 years before the Christian era, and about 100 before the building of Solomon's Temple, on what sufficient grounds we are unable to discover. He says, he cannot conceive "how any archeologist, however impressed with the versatility of the genius of Pericles and of the artists of his time, could for a moment attribute to that licentious man the erection of temples of the severity and purity of these Doric buildings. Pericles built to adorn Athens,—not to honour God, but to please man. As well might Durham Cathedral and the monumental Chapel of Westminster be both given to Henry VII., as the two temples above mentioned be classed with the more elegant works of the Ionic and Corinthian orders in which Pericles delighted."

Amongst other curious notions adopted by our author is the following, concerning Vitruvius:—"In looking at the life of Vitruvius, we see enough to render it very probable that it was in the army of Titus that he held the post of engineer, and might therefore have been present at the siege of Jerusalem. He might have had access to the sacred books then taken from the Temple. He might have been the intimate friend of Josephus, when, under the favour of the same emperors who patronised him, Josephus became a denizen of Rome, entirely throwing off all the shackles of his Jewish citizenship, which had so long set uneasily upon him. Is it not possible that they were one and the same person? that Vitruvius was no other than the Latin name adopted by Josephus with his newly-adopted country?"

Mr. Hakewill sees connections and intentions invisible to us, but we, with pleasure, bear witness to the earnestness with which his book is written, and the amount of research and ingenuity (mistaken or not) that it displays.

ART-PRIZE: GLASGOW.—The Art-Union of Glasgow have awarded the sum of 50*l.* to Mr. E. M. Ward, for his picture of "James the Second receiving intelligence of the landing of the Prince of Orange," which was exhibited last year at the Royal Academy.

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* Chaps. v. and vi. † Chaps. ii. and iii.

‡ "The Temple; an Essay on the forms of the Ark, the Tabernacle, and the Temple of Jerusalem; showing their correspondence with the forms of classic architecture, and the universality of its use in the temple architecture of the Mosaic dispensation; as of Gothic, for the same purpose, during the Christian dispensation."

* Mr. Fergusson adopts the old Jewish cubit of five hands breadth.

CAUSES AND CURE OF "SMOKY CHIMNEYS."

In the last paper (page 530) it was shown that the cause of the ascending motion of fluids through each other is *gravity*; and we will now proceed to inquire how this principle of *gravity* or gravitation is developed in the action of chimneys.

It will be as well, at this point, to disabuse the mind of the very common error, that "draught" is the *cause* of action; and it will afterwards be seen that *draught* is altogether an improper term to apply to this action. "Draught," or more properly *current*, in chimneys, is merely a *consequence*, and not a *cause*. It is the action itself, and not the cause of action; and in using the term draught hereafter, we will do so merely because it is already a familiar term, and may, therefore, conduce to the easier understanding of our subject, but must be understood to mean simply the *current* of smoke or air in chimneys, without reference to the *cause* of such current.

We have already seen why smoke rises, and it is, therefore, easy to perceive that the smoke from a fire would ascend, whether there was a chimney to receive it or not. But let us take two fire-grates of similar construction and equal dimensions; and fix one with, and the other without a chimney, and light a fire in each at the same time. As they continue to burn, we shall find that the smoke rises much quicker from that with the chimney to it. Whence, then, proceeds this difference?

It has been shown, that in the case of all fluids differing from each other in specific gravity, or weight, bulk for bulk, the lighter fluid will ascend through the heavier. This it will do with a velocity proportionate to the difference of their specific gravity; *i. e.* the greater the difference of weight, the quicker; and the smaller the difference, the slower will the light fluid ascend through the heavier. The same law that governs this motion of different fluids through each other affects equally each particular class of fluid with which a difference, or variation of specific gravity, or weight, can be produced amongst its own particles. For instance, if a portion of the contents of a vessel of water be rendered lighter than the remainder, the lighter portion will ascend until it reach the surface. By the aid of *heat* this can be done. A gallon of *hot* water is lighter than a gallon of *cold*; and hence, we find that a cauldron of water in process of heating is always the hottest near its surface. It is the same with air. To pursue the simile: a gallon of *heated* air is lighter than a gallon of *cold* air; and therefore it is that the heated air of a chamber always rises to the ceiling.

Air, as a fluid, differs from water in this respect, inasmuch as it may be made lighter by other means than by the application of *heat*; viz. by mechanical influence upon the property of *elasticity*, which it possesses in a very high degree, but which water possesses to such an insignificant extent that it is classed amongst, what are technically termed, *inelastic* fluids. In reference to our present question of "draughts," or currents in chimneys, only the first mentioned property of air requires to be considered, viz., that of becoming lighter by being subjected to heat; but before tracing their connection any further, we will endeavour to demonstrate the fact, that all bodies, solids included, become lighter by the application of heat.

The absorption of *heat* by any substance whether in a solid or a fluid form, causes such substance to expand; or, in other words, to occupy a greater space than it did before the *heat* was applied. For example,—take a piece of cold bar iron of any breadth and thickness, but exactly 12 inches long, and heat it uniformly until it attain a bright "red heat;" it will then be found, on measuring, to have expanded or increased in length, about 1-8th of an inch, or nearly 1-120th part of its whole length, and will therefore measure 12⅛th inches in length. Again, let a vessel containing exactly one gallon of water when filled to the brim, be placed over a fire or lamp;—it will be seen that as the water *heats*, it will commence, and continue to flow over the edge of the vessel, long before it reaches the temperature at which it commences to boil; and if the heating be continued until it reach the boiling point, and the water be then allowed to cool down to its original temperature, it will be found that about 1-3rd of a pint, or 1-24th of the whole quantity has overflowed; and therefore that it has expanded about 1-24th of its original bulk by being heated to the boiling point. In like manner, air, by being heated, expands and occupies a larger space; for, if we take a bladder and fill it about 3-4ths with air by blowing into it, then tie the neck firmly to prevent leakage, and hold it before the fire; in a few minutes the air will expand and fill the bladder.

Now, in proportion as this expansion proceeds in bodies, so do they become lighter; for it will be obvious by the above experiments, that if the expanded 1-8th of an inch, or 1-120th of the whole length, of the heated iron bar were cut off, it would be 1-120th part shorter, and therefore 1-120th part lighter. In the same way, the water, having expanded and lost over the edge of the vessel 1-24th of its bulk, must be 1-24th less than when it was cold, and will therefore weigh 1-24th less than its original weight. And, by heating the air in the bladder to the same temperature as that of boiling water, viz., 212 deg. Fahrenheit, it would expand 1-3rd of its original bulk, and would therefore be rendered 1-3rd lighter.

With solids, and all fluids except those that exist in the *gaseous* form, there is a limit to the amount of expansion by heat which they are capable of: for instance, at a certain temperature iron melts or becomes fluid, ceases to expand, and, uniting with the oxygen of the atmosphere, forms the oxide of iron; and water, at the boiling point, ceases to expand, and forming into vapour or steam, flies off into the atmosphere. But to the expansion of *gaseous fluids* by heat, there is no limit save that which limits the power of generating *heat; atmospheric air* may therefore be expanded to an indefinite degree.

This property of expansion, when applied to atmospheric air and other gaseous fluids, is called *rarefaction;* and we will presently see that the *rarefaction of air* is, in every case, the cause of "draughts" or currents in chimneys. We will first establish this fact in relation to chimneys in use, and will then account for the draughts which may be frequently found in those not in use.

First, then, let us suppose an ordinary room, in which a fire-grate is set in the usual way, and filled with fuel ready for lighting. The temperature of the room being the same as that of the external atmosphere, the column of air in the chimney will balance, and be balanced by the surrounding atmosphere as explained by fig. 4 (page 530). Now place a lighted candle to the throat of the flue, and it will be seen that no "draught" exists in consequence of there being a perfect balance between the air in the chimney and that outside. On putting a light to the fuel there is at first a dense volume of gas or *smoke* evolved from it, which, being specifically lighter than the atmosphere, ascends through it; and entering the chimney, passes up and out at the top, pursuing its ascent until it becomes dissipated by mixing with the other gases of the atmosphere. It does not ascend because the chimney is there to receive it, nor by virtue of any "draught" in the chimney, because it has been shown that there was none a moment before lighting the fuel. Its ascent up the chimney is then, in the first instance, owing entirely to its superior lightness, and it would ascend with equal rapidity at that instant, were the firegrate in the open air with no chimney above it.

But let us mark the progress of the kindling fire. There has been, as yet, no *rarefaction* effected in the chimney, because there has been no *heat* applied to the air; consequently, there is no "draught." Smoke or coal gas continues to be evolved from the fuel, and its temperature being greater than that of the air in the chimney, the latter is gradually heated beyond the temperature of the surrounding atmosphere; it therefore becomes lighter, and, the balance being destroyed, it is forced upwards by the pressure of the colder, and therefore heavier, air of the room, and the "draught" commences. As the fire continues to increase, so does its power of *rarefaction*, and a *current* or "draught" once created, there is a constant flow of air towards it, each successive portion of air presented to its action being made hotter, more *rarefied*, and therefore lighter than the last; so that the "draught," or *current*, increases in velocity as the fire increases in strength, continuing to do so until the fire attains its greatest heat.

This effect of "*rarefaction*," or expansion of air by *heat*, may be explained by the following experiment:—Let AB, Fig. 5,

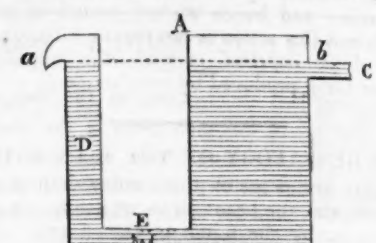


Fig. 5.

represent a vessel filled with water supplied by a pipe C, so arranged as to maintain the surface of the water at the level of the line *ab*. D is a pipe open at the top, and standing perpendicularly to the same height as the vessel AB, to which it is connected by a horizontal pipe E, so that the water in it shall stand at the same level as in the vessel AB—*i. e.* at the level of the line *ab*. The temperature of the water being uniform, the specific gravity or weight will be the same in both; the column of water in the pipe D will therefore balance that in the vessel AB, and the whole will remain in a state of quiescence. Now if a fire or lamp be applied to the middle of the horizontal pipe at E, as shown in diagram, it will impart *heat* to the water, which heat will be given out in equal quantities both ways; *i.e.* the same quantity of heat will pass along the pipe E into the upright pipe D as passes in the opposite direction into the vessel AB. But the vessel AB contains a much greater quantity of water than the pipe D, and the quantity of heat supplied to both by the fire at E being equal, it follows that the water in D will heat much sooner than that in the vessel AB; and therefore that at any given point of time after the fire has been applied the temperature of the water in the pipe D will be found to exceed that in the vessel AB.

It has been shown that as a fluid becomes heated so does it become lighter; the specific gravity or weight of the column of water in the pipe D must therefore be less than that in the vessel AB. This being the case, the balance existing between the two columns before the application of the fire will be destroyed; and the colder, and therefore heavier, column in the vessel AB will overbalance the lighter column in the pipe D, and cause it to rise and overflow the top of the pipe at *a*. The surface of the water in the vessel AB will, at the same time, have a tendency to fall, but the supply instantly afforded by the pipe C will prevent it from doing so, and will maintain the level of the water at the line *ab*. The preponderance of the column in the vessel AB being thus kept up whilst the fire at E continues to impart heat, a continuous stream will flow through the pipes E and D, issuing from the top of D, and this stream will increase in velocity as the strength of the fire increases, until it arrives at that point where the continual supply of cold water to the pipe E will neutralize the heat-imparting power of the fire.

Now, if we imagine *atmospheric air* to be the fluid used in the above experiment instead of *water;* and take the pipe D to represent a chimney, the vessel AB a room, the pipe C the door and other apertures through which a supply of cold air enters, and the lamp at E the fire, we have before us a complete practical illustration of the fact that the rarefaction of air by heat is the cause of the currents in chimneys commonly, though erroneously, called "draughts."

The term *draught* signifies that peculiar motion of matter where a moving body is drawn after or follows the power which produces the motion, and is directly dependant upon it for its onward progress. Thus the cart is drawn by the horse; or, if we lower a bucket into a draw-well and raise it again to the surface filled with water in the usual way, we *draw* it to the surface; and the motion of the water from the well in such case is *draught*. Now, we have already seen that one fluid rises

through another by the superior pressure of the surrounding column upon its under surface, and therefore that it is *impelled* upwards. We have also seen that the action of chimneys is produced simply by rendering one portion of air lighter than that by which such portion is surrounded, by which means it is *impelled* upwards; and hence we are bound to conclude that this action is not that of "draught," but of an *impelled current*, the impelling power being produced by *rarefaction*.

THA.

THE GENEALOGY OF THE FINE ARTS.*

THIS brings me to the third branch of my subject, viz., the beautiful in art itself. Nature drunk in by the mind, as shown under the former head, is the seed for the production of a new world,—the world of art, which exists for the same purpose as its prototype, to satisfy the sense of beauty in the human breast. From a chaos of sensations previously awakened by the aspect of external nature in the mind of man, this new and fairer creation rises. A more perfect system, freed from the blemishes and faults of the first, is thus established in the sphere of art: the materials and principles, luxuriance and comprehensiveness, are derived from nature; while the fostering love of the beautiful, as the inspiration in the soul, gives it harmonious unity and depth.

Art is therefore something more than a transcript of nature even in her highest charms: it is essentially spiritual. It does not come from nature direct, but is refined and exalted in the mind. If art were no more than a reproduction of nature, it would be the inferior, as the imitator must ever be behind the original. But art takes higher ground; she has a dignity peculiar to herself, an essence of her own, which wins her the advantage. Art appropriates the principles and elements of nature, but, in their passage through the mind, a fresh image is stamped upon her types. They receive a new lustre from the soul, a ray of the beautiful from within. The artist may exercise his genius upon a perishable material, but something from the immortal part of himself has mingled in his conceptions, and this gives to works of art infinitely greater interest than their originals could have. The main difference between architecture and the other arts of design is this,—architecture springs out of physical necessity, while the other fine arts have beauty for their sole object. Architecture is the application of abstract beauty, as much of it as can be applied, to the embellishment of the useful, that is to say, to the forms and elements of necessity. I say, forms of necessity; but some of the general forms of architecture are struck out or foreshadowed by nature herself. But the disadvantage of architecture is, that the useful must, in some measure, qualify the beautiful. Painting and sculpture have beauty for their essence, but architecture is a clothing, or pervading, the useful with the spirit of the beautiful. It is, however, the human architect, so far as consistent with the different scale of his enterprize, following in the footsteps of the Divine. That the primitive wood cabin was its type, may well be questioned. Infancy is as much the type of manhood. Architecture has better types, a richer dower; it has all nature, from the human form and face to the most insignificant plant or mineral: all yield their lesson to the architect. It draws not literally, however, from them. It is not a direct, but an analogical imitation of nature.

But art, taken generally, is an imbodiment of an invisible archetype in the artist's mind, his *beau ideal;* but which he models upon nature as a basis: it is nature transfigured, glorified, by its contact with humanity. Of all created beings, man, particularly as refers to the manifestation of his mind and character, is the most interesting to man; an object, therefore, on which is impressed human feeling and intelligence, possesses, in consequence, a greater interest than by any other extraneous circumstances it could receive. Works of real art are the works of God brought through the mind of man; and therefore doubly "good," beautiful, and divine.

Art may, in this light, be considered as a supplement which the human mind adds to nature. It is a sequel to her original beauty. Like "the metamorphosis of things into higher organic forms," is their change from nature into art. The mind or imagination of the artist is a mirror that gives back the forms and hues of nature, but heightened and refined: while painting and sculpture array with second life some glorious action, some heroic deed of the past, architecture clothes with new vitality and beauty the forms of external nature.

The sculptured Jupiters and Minervas of the ancients, and the rest of their petrified goddesses and nymphs, are therefore, as remarked under the preceding head, not copies from nature, but from a vision of beauty in the mind of the artist, inspired indeed by nature, but exalted in the mind, and possessing more of perfection than any individual.

But whilst showing the advantage of art over nature in this respect, let us do justice to the latter. The eye requires education and constant practice even to see truly the beauties of nature. All does not lie upon the surface. In the lowest walk of art there is scope for the highest mind. The most gifted eye cannot exhaust the significance of any object, and "in the commonest human face," to quote Fuseli, "there is more than Raphael will take away with him."

We cannot compete with nature on the same ground. For the production, for instance, of powerful light and shade in a picture, an artist must take advantage of the local colour of objects, and place dark ones in the shade, and white ones in the light; while, such is the intensity of light in nature, that she can produce her effects independently of local colour,—effects more gorgeous and potent than the artist, with all the contrivances of art, and of science to boot, is able to reach.

Moreover, the effects in nature are nearly always fine. Natural objects, whether viewed singly or in groups, must be almost invariably picturesque, for both the linear and aerial perspective operate upon them on the most unerring principles—an advantage which the artist, from some error in applying the science, may miss. Light and shade, and reflection, which the artist can but imperfectly comprehend and represent, are also, in nature, acting unerringly.

The artist of a fine perception, is, therefore, of all others, the least satisfied with what he produces, as he is the most capable of seeing the truthfulness and transcendancy of nature. He is also the most capable of seeing the immense distance between her common-place, every-day, effects, and those which she sometimes exhibits to the educated and poetic eye.

The comparative feebleness of art is further apparent when we consider, in the greatest works of art, how few the beauties, how many the faults; how seldom we find a picture that is good in more than one department of the art! The great colourist is deficient in composition; one wonderful in conception and composition, may have no idea of colour; while the master of chiaroscuro is a novice in everything else; suggesting the fact, that only the union of the talents of several artists, supposing that possible, could secure a full, truthful rendering of nature. Each of these important departments has had its respective master, but where is the magician who, uniting their varied excellencies in one production, can conjure up before us the entire spirit and sentiment of nature, and reveal to us the whole mystery of creation?

Besides, from nature comes every element of art; within her sphere lies all the inspiration of genius. An abstract idea of beauty, it is true, exists in the mind, transcribed from no individual object or creature. But, as Pope asks, from what can we reason but from what we know? so, we may inquire, what can we conceive and image to ourselves, but from what we have seen? The first part of genius is a strong susceptibility to the influence of beauty in nature. And the Muses were rightly conceived as the daughters of memory: the great ideas which the Raphaels and Titians have sought to imbody, however gradual their growth, have been indebted to nature for every stage of their advancement.

Architecture, as we have seen, in common with all the fine arts, derives its principle of beauty from nature; but, unlike the rest, it is indebted to nature for something else, closely allied to and in some measure interwoven with the other, viz. constructive principle. Structure is an important element of architecture, and fortunately for us, the affinity between it and nature extends also to construction. Of this fact many illustrations could be given, and of the use made of it by architects. The constructive principle of St. Bride's Church steeple at London, with its spiral staircase and newal, it is well known, was derived by Sir C. Wren from a common form of spiral shell. The dome of the Cathedral of Florence owes its origin to the structure of the human skull, the peculiarity of which is its combining strength with lightness. The naval architect has obtained valuable hints for ship-building from the structure of shells. The figure of the duck originally suggested the form of the ship, and certainly the finest models, the best for contending with winds and waves, are those that most resemble their original, as the Dutch galliot will attest.

But, as in art, so in science, we cannot directly compete with nature; we cannot reach her wonderful mathematical skill,—the nice balance of forces,—resistance, and strain; we must waste our material, and, after all, be behind in that certainty which characterises her engineering enterprises, and which is visible in her most ordinary productions.

Let us glance for a moment over the empire of art, with an eye to this analogy with nature. In music's various moods and instruments we recognise the various hymns of nature,—the murmuring stream, the melody of birds, the wind upon the shore in "vocal reed," which are music's acknowledged types. Many oft-used expressions, as "a tide of harmony," "floods of melody," "gush of song," are confessions of this analogy. Campbell speaks of the "stormy music of the drum;" Shakespeare makes music the food of love, and compares its dying fall to a gentle wind stealing over violets; and Milton's "heavenly host"

> "Sang hallelujah as the sound of seas,"

In the department of architecture we shall find equal interest. The "twilight grove" is seen in the temple colonnade, or "dim religious aisle." The "awe-inspiring dome" speaks of the canopy of the skies—the celestial hemisphere—which has in some instances been its model. The beautiful curves of the capitals and shafts of the antique columns are at least suggested by lines in nature. The earliest Egyptian column was a stalk of the lotus, capped by its calix; and its base was, in all probability, the foot of the same plant, where it issues from the root.

All descriptions of design are varied pictures or reflections of nature. Whether a single edifice, or group of edifices, or picturesque avenue, be the object of our admiration as a work of art, one source of our pleasure must be a recognition of principles dictated by nature, and a recollection of corresponding effects in her wide domain.

Every true style has its types in nature, every shade of character its corresponding expression there. The principles of design have been learnt in her school. In the decoration of architecture we shall find nearly the whole of the vegetable kingdom, which, though not literally copied, are yet the most easily traced. No department of creation seems better adapted for decoration in the arts of architecture, sculpture, &c., than this: plants, their foliage, flowers, fruits, have accordingly been more extensively employed, as the basis of ornamentation, than any other objects. In some Gothic buildings the abundance of floral decorations render them rivals, in point of luxuriance, of Nature herself. Plants were very early thus employed. The almond, pomegranate, and flowers were chosen, even in the wilderness, by divine appointment, to give form to the sacred utensils; and, down to the present time, the ivy, lotus, acanthus, palm, vine, oak, and other beautiful objects of the vegetable creation have been the subjects of the chisel, and have given life and expression to architecture and the arts of decoration.

The types of art are in nature, but art, as before shown, cannot be entirely referred to that source. The soul of man has had part, and through that part may, generally, be read much that is interesting of the character and history of the times that produced it. The monuments of art are always the true representatives of the physical, moral, and intellectual state of man. They are the exponents of his

* See page 553, *ante*.

religious and political position, and indicate the exact character of his mental development at the corresponding periods of his annals. Nations have written the records of their history in stone. The temples, the palaces, the monuments of Germany, France, and England are so many petrified poems. The Vatican, the Escurial, the Alhambra, each unfold to us more than many volumes could have done, of all that is interesting to man, of all the se absorbing and fascinating subjects on which we would question the past. Catholicism has written its history, and more than is ordinarily understood by history, in the monasteries, cathedrals, and monuments of the middle ages; and, whatever be its subsequent fate, the memory, at least, of its worship will need no other shrine. Liberty, commerce, and industry have recorded their enterprise, also, in the same characters. And the monuments of municipal greatness are not among the least of the trophies and achievements of architecture. Ambition has imbodied its yearnings and its triumphs in pyramids, columns, obelisks, triumphal arches; humanity in hospitals, and schools, and institutions of benevolence; and science in railroads, tunnels, aqueducts, and bridges. The edifices of England are so many chapters of our history. The genius of a nation, as well as of the architect, is stamped upon such relics.

We have seen that art is *one* in its origin,—that its waters, however diversified their channel, flow from one fountain, and its glories, however differing in hue, are reflections of one infinite brightness: may we not go further, and observe that art is one in its real nature and object? In the infinity of beauty and of truth, pervading this mighty universe of matter and of mind, lie the inspirations of art; and it is from his fresher, deeper insight into this inexhaustible life, that genius derives his power, and his productions their value. No matter what his tools, whether colours, or marble, or stone, or sounding pipes and strings, or cadenced words, his work is the same; his eye has looked through and beyond the horizon of his time; his ear has listened, through the discords of the present, to the harmonies of the future; his thought has pierced, through the crust of the surface, to the deep beneath; and now the time is come; he has seen,—he must show; he has heard,—he must tell; he has received,—he must give; in picture, or statue, or structure, or symphony, or poem, he imbodies his results; and in all these various forms of production, whatever be the character of their design, the aim of the earnest-souled producer, and the requirement of the earnest-souled receiver, is one;—that the thing produced shall be beautiful and true.

As the artist's work is similar, so is its purpose. Like the mountain stream, which, descending from the clouds of heaven, seeks, with a widening current, the boundless ocean whence its waters first exhaled, the true artist ever strives after that whole infinity of beauty and of truth, from a detached ray, as it were, of which his course of inspired action began. In the beginning of his career there was an extension of the infinite to him,—a revelation to his spirit of a beauty and a truth, newer in kind, or higher in degree, than was before known or felt: from this his labours sprang; and the true tendency and end of them is to make what he thus knows and feels, known and felt; to open to his own and all others' eyes a wider and more perfect view of that glory which has glanced upon him; and in proportion as he has fulfilled this shall his work endure. But this is not all:—

The ruling principles also of the several arts are identical: in the expression of the same quality or feeling, the same law of means obtains in all the arts, *i. e.* the elements must be used after the same principles, and therefore the *laws of the fine arts* are deducible from *the principles of* ART, and may be considered as a polyglot version of art-law. If, therefore, we obtain a comprehensive knowledge of the principles and laws of art, we possess the key to the intelligence and application of the laws of the arts, which are its different branches. The aim of art, in all its branches, throughout its works, is, from variety of element, by harmony of combination and arrangement, to produce unity of effect; in fewer words, variety in unity.

It would free an artist from the pedantry—from the trammels of the technical, to acquire some knowledge of the arts which thus claim kindred with his own; and where there is original power, the mind, instead of being oppressed by its increase of attainments, will discover, or discern, more clearly, the common bearings and hidden analogies of the different branches of art, which will thus shed light upon each other. An architect, for instance, would be a better architect from knowing something of painting and sculpture,—while the painter and sculptor would find their advantage in an acquaintance with architecture—the principles of the three arts being the same, only differently applied. The architect need not be able to paint a picture, or model a bust,—nor the sculptor or painter to design a mansion; but each should understand the great principles of the sister arts, and know how, or in what way, they are identical with those of his own, and be able to trace the analogy and relations of the various productions of genius. He does not thoroughly understand the principles of his own art, unless he see their universal application. A study of the laws of art, generally, would not enable the same man to write an epic, compose an overture, and design a palace, but it would be attended with advantages sufficiently important in reference to the art to which he was devoted. It would lead him to see at a glance to which of the arts any given subject was best fitted, and prevent a painter taking one that was more suited, or perhaps only suited, to a poem; or a sculptor attempting to illustrate, by his chisel, one that required the superior resources of painting to express. Many failures have had their source in ignorance or inattention on this head. There are necessary limitations to each of the arts: their scope is various. Painting is more confined than poetry, and sculpture than either. Of the five several arts, poetry is the most excellent—the most comprehensive: the poet has the longest line, the widest range. Ideas can be expressed in poetry that cannot be adequately expressed otherwise,—by any other of the arts.* S. H.

SOME SUGGESTIONS FOR ARRANGING AND COLOURING THE INTERIOR OF THE BUILDING IN HYDE PARK.

MANY persons must have heard with surprise of the enormous quantity of space required by comparatively so few a number as 8,700 exhibitors, and many more will, no doubt, feel grieved at the number of interesting objects that must necessarily be rejected for want of room. It is said that about 400,000 square feet of floor and counter space have been asked for, while there are in the building but about 200,000 square feet available; one-half, therefore, only of the intended exhibitors can be accommodated, or one-half of the articles sent in must be returned, and thus many industrious individuals disappointed. It has consequently been determined to form an additional gallery, and thus to give an increased space for about 40,000 feet—but a trifling sum towards the 200,000 additional feet asked for.

The object of this communication is to suggest one or two things which may be found useful. First, as to the *floor space*. In very many cases it may easily be doubled, by placing, about 4 feet or 4 feet 6 in. above it, a counter or table for other objects to rest on. This height is about that of an ordinary mantel-piece, would be low enough for anything to be viewed with ease on it, and would at the same time be sufficiently high to enable the spectator to have a full view of all objects underneath. By this means a vast additional space would be obtained at but a trifling cost.

I would here remark that all *architectural* and *engineering models* should be so placed that the eye of the spectator be on a level with the horizon line, and so that he may stand and view it as he would do the actual building. The tables, as proposed, might be especially reserved for all such models as buildings, bridges, docks, &c., always, as I have said, providing a true eye level. We should be able to look along the surface of a dock or line of railway; but it can hardly be considered desirable to look down on the roof of a church and see nothing but the gilt cock.

As to *counter-space*—this may also be in nearly all cases doubled, by forming each counter like a roof with inclined sides meeting in the centre, both forming an angle of not less than 45 degrees, or even a more acute angle might in many instances be adopted. Fillets would, of course, be nailed at various distances apart all along each inclined side, to keep the things exhibited in their places. In many respects this would be found better than a flat table, particularly where the spectators are likely to crowd on each other, and consequently, to lean over it; besides which, most objects are better seen on an inclined desk than on a flat space. No fear need be felt that any object will be in *shadow*, for shadows there can be none, where the whole roof is one uninterrupted surface of light.

One would have thought that some slight shadow in some part of the building, produced by the admission of uninterrupted light, would have been an advantage, as the beauty of a thing depends almost as much upon the shadows it casts, and its consequent relief, as upon its intrinsic merits. All architectural models, gems, gold and silver work, require pure light for their full effect. Surely the matchless jewel, the Koh-i-noor, should burn in a sunbeam.

And as to the structure itself, the effect that would have been produced by the sun's rays coming in through the southern side, will be lost by the intention there is of filling it up with close boarding: this should not be, as the great length of the building renders some such addition to the perspective needful. Probably, the finest effect of sunlight in this country, in an *interior*, is—or rather should be—seen on a bright day in St. Paul's, the light coming in in long rays through the windows under the dome. This fine effect is unfortunately but rarely seen, as the windows are *painted* over, this painting stopping the light and thus enabling visitors to see the dome. It is, therefore, only on rare occasions, and when the windows are opened, that the magnificent effect is seen. This comparison will enable us to judge of the additional interest the admission of pure light in some portions of the building, and through the southern side, would give it.

It has been stated by the commissioners that the *wall space* is not to be considered as merely a space for hanging things from, but is to be fitted with shelves: if so, I would suggest that these shelves should incline downwards towards the spectator, as all objects on them will be thus much more easily inspected than if the shelves were on a level, and another advantage would be, that a greater number of shelves could be made available. As there appears, too, to have been so slight a demand for wall space, would it not be a good plan to devote the whole of it, not demanded, to raw materials, specimens of minerals, and rare woods; the higher shelves to hermetically sealed bottles, preserved meats, and other such articles?

Another point of no slight importance is the best and most effective way of exhibiting to advantage the *quality*, *texture*, and *colour* of rich silks and velvets; it is to hang them in *folds*, as they hang naturally in a dress, and not, as they do at the "Society's rooms," plaster the place with them in great flat patches, some three or four feet square. This mode of hanging them in folds will be found to double the beauty of the stuff, as there is then, in addition to the quality, texture, and colour of the silk, *light* and *shade*. It will too, as is obvious, save above two-thirds of the space. A Cashmere shawl on a lady's shoulder is a beautiful and graceful ornament, but plastered to a wall is as uninteresting as a piece of oilcloth.

You must allow me to add a word on the specimen of colouring put upon the building. How Mr. Jones could have done this is indeed surprising. But let us compare the first two coloured plates of the second volume of Mr. Jones's own magnificent work with the two last plates; and if we can learn nothing from such comparison, we are incompetent to judge, and our case is indeed hopeless. The colour of the Alhambra is almost worthy of Nature herself. In some parts it is absolutely faultless. In Egypt there are vaster surfaces, and in India richer and deeper colours; but nowhere has the pencil of the decorative artist been used with such judgment, and with such magic skill, as in this enchanted palace. Can nothing be learned from it?

I would here humbly suggest to the attention of the commissioners a mode of colouring the interior of the great building, and which would at least have the claim of *novelty* and *ease of execution*.

The system I propose is shortly this. To paint the whole of the iron-supporting columns in *pure white* throughout the building; and then each aisle throughout its whole length *one uniform colour*, commencing in the centre avenue with yellow (yellow being the central and brightest colour of the spectrum); the aisles or avenues on the one side being then in *orange*, *red*, and *purple*, and those on the other side *green*, *blue*, and *violet*: thus seven of the aisles, including the central avenue, would make up together the colours of the solar spectrum, and be arranged in the same order—this system being of course continued throughout the building to the lateral walls. No coarseness or glare would result from such an arrangement in so large a space. As (to view it in detail) the centre aisles, looked at separately, would have the same effect as a room covered with yellow paper, so likewise the next in order, the orange, the next purple, and so on. Each avenue by itself would have a simple and beautiful effect; as all single uniformly coloured spans

* To be continued.

are always seen to have. The next thing would be to *blend them together* as in the spectrum. Nature herself has placed in their most harmonious order the colours of the spectrum, and has in the most admirable way blended them together, by running one colour into another, and so producing, by the gentlest gradations, the most complete harmony. No art, however high, can do this thus perfectly, but we may try to approach it. I should propose to accomplish it, in this instance, and blend two adjoining tints together, by running on the under side of each girder, and to about a quarter of their length, some ornamental pattern, in the pure white of the columns. Some care would be necessary in managing this so as to take enough of the white on to the girder without too much covering it. The ornament, too, should not quite touch the head of the columns. This would, in the long perspective, and consequent distance and air, produce, I cannot but think, an almost magical effect; and all the colours being in the distance seen together, the harmony, at least, would be perfect,—this arrangement being the same as in nature. It could, too, be executed by ordinary workmen, and as rapidly as if painted one uniform tint; but its complete success—and it could not be otherwise than successful—would much depend upon the artist's choice of colours, as the colours should not be crude.

The effect of this mode of colouring the great building would be to a spectator, near and immediately around him, that of a room or hall whose general hue is yellow, or green, or purple, with spaces or halls immediately round, orange, or blue, or red, but it would be in the far distance that the wonder of the thing would be found, as the *air* and *distance* would blend all the colours into one perfect and harmonious whole, and the vast numbers of spectators, and the piles of wealth would appear as if covered with a rainbow.

This, upon reflection, will be found to be (if any decorative colour at all is used) the cheapest and most expeditious mode conceivable of accomplishing it: such an opportunity, too, as this, of showing the effect of large masses of bright colour has never occurred before, and may not again: such a system of colour, indeed, is applicable only in a vast space like that in the Park, and could not apply to a small one,—*distance* and *aerial* perspective, being necessary to its full effect. C. BRUCE ALLEN.

THE METROPOLITAN LOCAL COMMISSIONERS FOR THE EXHIBITION.

THE various metropolitan committees for deciding on the claims for space in the Hyde-park building, are now definitely formed. We give a list of those which more particularly interest our readers.

MINING, QUARRYING, METALLURGY, AND MINERAL PRODUCTS.

Professor Ansted, chairman; Mr. J. A. Phillips, deputy chairman; Professor E. Forbes, Mr. Matthew Uzielli, Sir J. Duke, bart. M.P.; Professor Tennant, Messrs. Robert Hunt, W. A. Johnson, and — Aston.

MECHANICAL, CIVIL ENGINEERING, ARCHITECTURAL, AND BUILDING CONTRIVANCES.

a. Mechanical and civil Engineering.—Mr. C. Fowler, chairman; Mr. E. Clark, deputy chairman; Messrs. J. M. Rendel, I. K. Brunel, Thos. Wicksteed, Joseph Locke, M.P., W. Bridges Adams, H. H. Fulton, W. Harding, W. T. Clark, E. Coffey. *b. Architectural and other Models, and architectural Contrivances.*—Messrs. H. H. Burnell, John Jackson, Capt. L. L. B. Ibbetson, Messrs. N. J. Cottingham, J. J. Scoles, John Humphreys, J. G. Hammack.

PHILOSOPHICAL INSTRUMENTS AND MISCELLANEOUS CONTRIVANCES, INCLUDING PROCESSES DEPENDING UPON THEIR USE.

Capt. W. H. Smyth, R.N., chairman; Mr. J. S. Bowerbank, deputy chairman. *a. Philosophical Instruments.*—Professor De Morgan; Messrs. J. R. Hind, James Glaisher, Augustus Mordan, Andrew Ross, W. H. Thornthwaite, John Chubb, J. Sylvester, John Currie, John Masterman, R. Hanbury, George Knight, W. E. Newton. *b. Chronometers.*—Messrs. B. L. Vulliamy, E. J. Dent, Charles Frodsham.

WROUGHT AND HAMMERED IRON, CAST-IRON, AND IRON CASTINGS.

Mr. Wm. Bird, chairman; Mr. C. J. Redpath, deputy chairman; Messrs. Joseph Robinson, J. S. S. Hopwood, Lieut.-Col. Colquhoun, Messrs. Wm. Tite, John Sylvester, R. A. Robinson.

WORKING IN PRECIOUS METALS, JEWELLERY, AND ALL ARTICLES OF LUXURY NOT INCLUDED IN THE OTHER CLASSES.

Lord Ashburton, chairman; Mr. John Gray, deputy chairman; Messrs. Sebastian Garrard, J. Hunt, Samuel Oram, W. Sandland; Sir M. Montefiore, Bart., Messrs. H. T. Hope, M. P., S. A. Hart, W. Wyon, John Bell; Sir E. N. Buxton, Bart., M. P., Sir Wm. Clay, Bart., M. P., Mr. Rt. Mushett.

GLASS, CHINA, POTTERY, CERAMIC MANUFACTURES, &c.

Mr. R. Obbard, chairman; Mr. R. Hunt, deputy chairman; Messrs. Apsley Pellatt, Stephen Green, Charles Cowper, G. Houghton, W. A. Wilkinson, J. Richards, J. Wedgwood.

FURNITURE AND UPHOLSTERY, DECORATIONS, PAPERHANGINGS, AND PAPIER-MACHE.

Mr. E. Snell, chairman; Mr. S. M. Hubert, deputy chairman; Messrs. Edward Bond, J. G. Crace, Thomas Dowbiggen, Peter Graham, William Smee, W. A. Wilkinson, John Carter. *Paper Hangings.*—Messrs. Frederick Clarke, W. Haselden, Robert Horne, John Nunn, W. B. Simpson, W. Evans. *Papier Maché.*—Messrs. J. Bettridge, J. Webb.

MANUFACTURES IN MINERAL SUBSTANCES, USED FOR BUILDING OR DECORATIONS, AS IN MARBLE, SLATE, PORPHYRIES, CEMENTS, ARTIFICIAL STONES, &C.

Mr. W. Tite, chairman; Mr. W. Freeman, deputy chairman; Messrs. J. B. Bunning, G. Godwin, C. Larkin Francis; Professor Ansted; Messrs. J. B. White, John Humphreys, A. Aspitel.

FINE ARTS.

Lord Colborne, chairman; Mr. C. R. Cockerell, R.A. deputy chairman; Lord Ashburton, Sir M. Montefiore, Bart.; Messrs. John Bell, Henry Weekes, W. F. Woodington; Sir Edwin Landseer, R.A.; Earl Compton; Messrs. Jas. S. Bowerbank, Richard Cook, R.A., D. Williams Wire, J. Cook Evans, David Roberts, R.A., C. B. Wall, M.P., D. Colnaghi, J. S. S. Hopwood, William Tite, Chas. Barry, R.A., G. Godwin, N. J. Cottingham, Thomas H. Wyatt, Charles Fowler, J. B. Bunning, H. H. Burnell, W. G. Rogers, J. Webb, Wm. Wyon, R.A., Alderman Salomons, J. R. Gowen, M. Digby Wyatt, S. A. Hart, R.A., T. Creswick, R.A., Francis Smedley, John Hancock; Sir W. Clay, Bart., M.P.; Messrs. — Wyatt, A. Ashpitel, John Davies, John Humphreys, J. G. Hammack, Robert Mushett, J. R. D. Tyssen.

MEMS. PROVINCIAL.

A SPACIOUS cattle market has been erected in George-street, Chester, near the canal and railway station.——A new residence in the Gothic style for the Roman Catholic bishop at Clifton is in course of erection there. The church adjoining, which is a Grecian structure, is to be new cased in the Gothic Cathedral style.——A chapel to the grammar-school of King Edward VI. at Bromsgrove, has been recently erected, in the first Pointed style, from a design furnished by Mr. H. Day, of Worcester, architect, and carried out by Mr. Robinson, of Redditch, contractor. The fittings are of oak, and the pavements of Minton's tiles. —— St. Bartholomew's church, Roby, was opened on Sunday week. It is intended to form, as it stands, the chancel of a future church.——In the storm of Tuesday week, the new Roman Catholic Chapel at Askeaton, in course of erection, fell, says a contemporary, with considerable damage to the building. —— A new Temperance Hall is about to be erected at Sheffield, at a cost of 1,000*l.*, to be raised by shares. It is to accommodate 1,200 persons. —— St. Werburgh's Church, Derby, has been re-opened, after being enlarged and otherwise altered. The north aisle has been prolonged to afford additional accommodation for 150 persons. The west gallery has been fitted up with free seats for Sunday-school children and others, and a porch has been added to the west end into which the descent from the galleries is effected by means of two stone staircases. ——The Tamworth Peel Testimonial amounts to 1,300*l.* A statue is to be erected in front of the Town Hall.——Shares to the amount of 14,000*l.* have been taken for the proposed music hall at Bradford.——The parishioners of Bradford have resolved, before proceeding to the projected enlargement of their parish church, to employ a competent architect to make a complete survey of the fabric. A committee has been appointed to carry out the resolution.——Two of the wards of Tynemouth have pronounced in favour of the establishment of public baths and washhouses.——The *Glasgow Reformers' Gazette* states, that Mr. York, the contractor for the new Stockwell bridge, has laid the foundation tier of the northern abutment. This consists of a course of heavy blocks of dressed stone, 18 inches thick, and varying in weight from 2 to 2½ tons each. These rest on a substratum of piles, driven 13 feet into the bed of the river, and sheathed and bound. A second course of stone is to be laid transversely over the foundation tier. The top of the piles is 9 feet 6 inches below the surface of low water. The cofferdam permits of the operations being carried on night and day. The expense of preparing the bed of the northern abutment and first pier amounts to more than 4,000*l.* The ceremony of laying the foundation stone will take place early in 1851, so soon as Convener York is prepared to form the spring of the first arch.

ARCHITECTURAL CLUB AND A HOUSE FOR THE INSTITUTE.

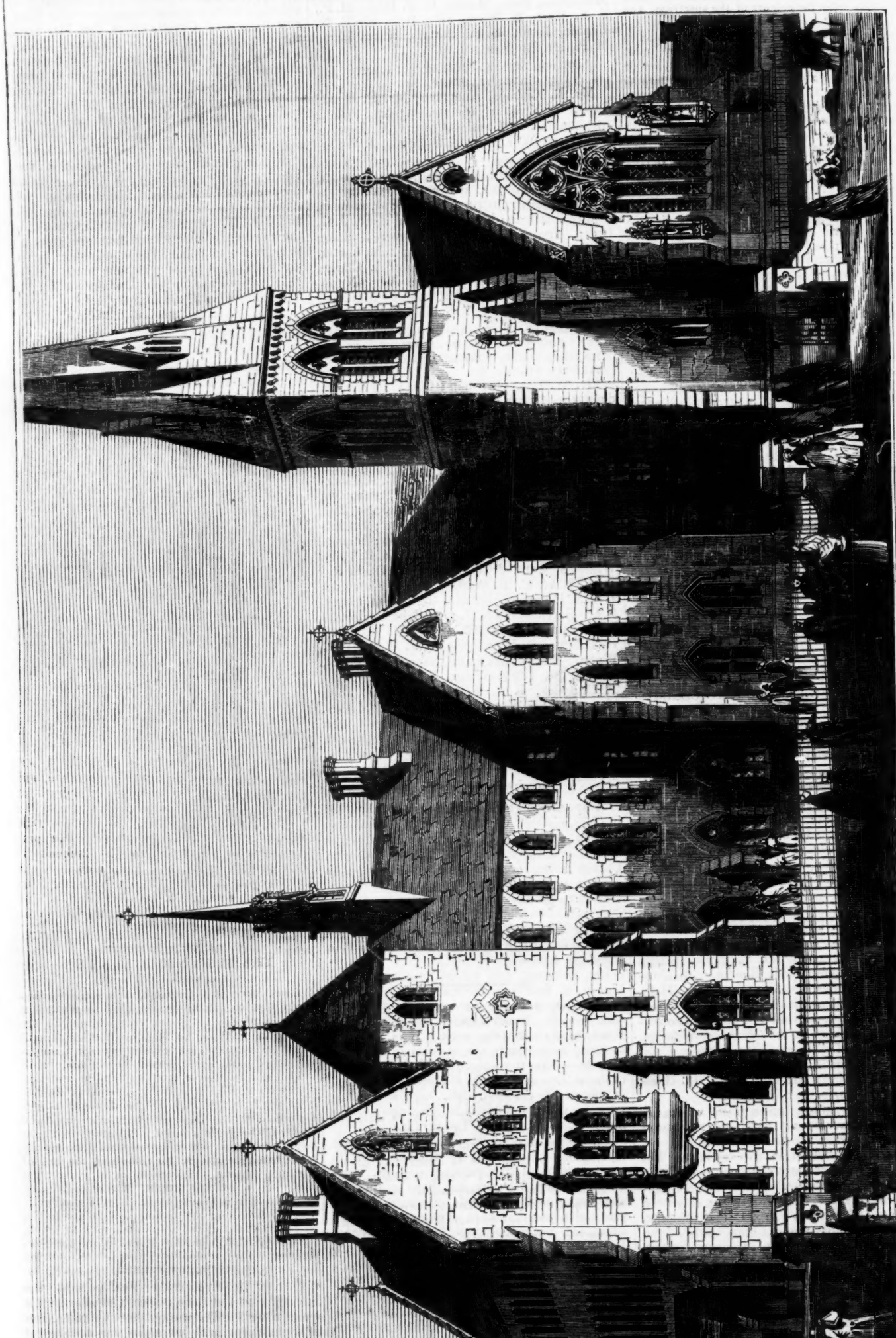
MY attention of late has been directed to several useful and exceedingly interesting articles published in your valuable journal relating to clubs for literary and scientific purposes. Some of your correspondents propose to provide buildings adequate to the requirements of certain classes, but it has always been to me a matter of no small regret that an influential body such as our Institute of British Architects could not provide themselves with a building suitable to their own respectability, and compatible with the dignity of those who represent the noblest science of civilized nations. I would propose the establishment (in connection with the present Institute) of a club adequate to the wants of the members; and also of those who would, as a matter of preference, become subscribers, where all the present advantages of a club could be combined with a literary society, and a first-class Architectural and General Library.* Certain it is that if the present Institute would establish the "Architects' Club" (a situation such as Buckingham-house, Pall-mall, being chosen), and allow all the respectable Architects in the three kingdoms, who were desirous, to join them, on the usual terms of a 30*l.* subscription being paid as the entrance, and 10*l.* annual, I feel no hesitation in saying that at least five hundred members would be willing to enrol themselves and pay down the required sum, which would enable the promulgators to purchase premises adequate to their present wants, and have such a sum in hand as would enable them to commence an investment towards a building-fund, which should some day raise a structure not to be equalled in London. H. B.

THE SERPENTINE AND THE EXHIBITION.

CONSIDERING the thousands of persons who annually bathe in the Serpentine, and the multitudes who perambulate its banks, especially during the "season," there can be no doubt that the state of that water is, even under *ordinary* circumstances, a matter of considerable public importance. How still more important a matter will be its condition during the Exhibition of 1851, a period at which it is expected the *very spot* will be thronged by distinguished persons from well nigh every nook and corner of the civilized world. How strange, therefore, that, so far as can be seen, no measures are being taken to remove the filth from the bed of this huge floating abomination, or to convert the latter into a running stream. Government have been told over and over again, by the most eminent physicians of the day, of the danger to the public health during the hot summer months, which arises from the disgusting stagnancy of the Serpentine.

DELAY IN STARTING TRAINS.—In the Sheriffs' Court at Glasgow, on Thursday in last week, Sheriff Bell decerned for the full claim of a passenger, with expenses, for a delay of three-quarters of an hour caused by failure of the Edinburgh Railway Company to start a train on the fast day at the time appointed. Such a delay the sheriff held to imply mismanagement.

* This suggestion has been made more than once in our pages, and will ultimately, we have no doubt, be carried out. The "Architects' Benevolent Society" and others could be associated with it.—ED.



CONVENT OF THE SISTERS OF MERCY, CORK.—Mr. William Atkins, Architect.

THE NEW AND OLD ROOF OF EXETER HALL, STRAND.

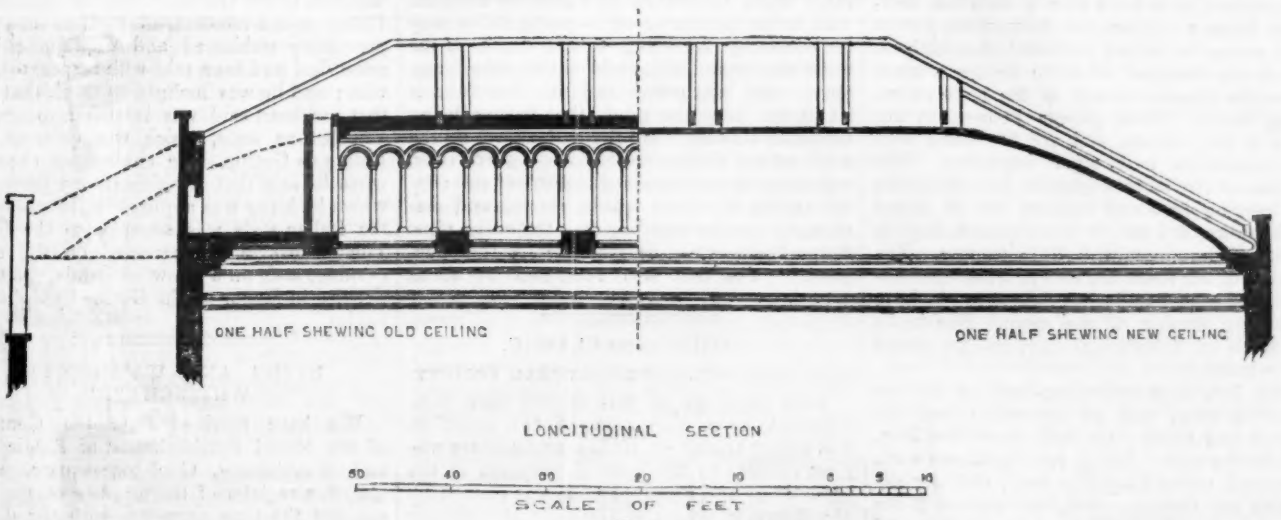


Fig. 1.

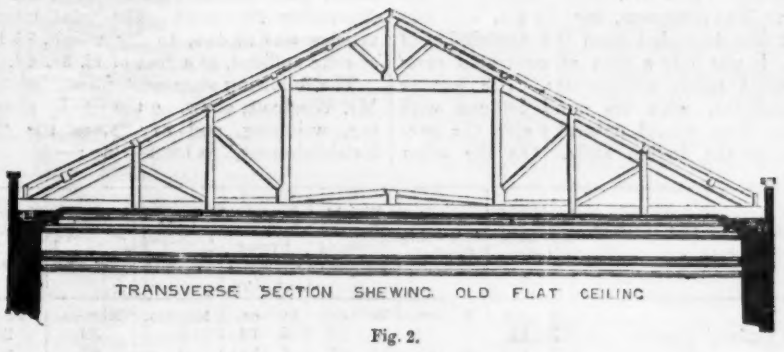


Fig. 2.

Fig. 3.

CONVENT OF SISTERS OF MERCY, CORK.

SAINT MARIE'S of the Isle, a Convent of the Sisters of Mercy, Cork, of which we give an engraving, is now being erected from the designs and under the superintendence of Mr. William Atkins, architect. The building contains an establishment for 40 nuns, an orphanage for 60 girls, a house of mercy with accommodation for 70 servants, a poor-school for 400 children, and a school for the daughters of the more respectable class. Under a tower at the north-west end of the front is an entrance for visitors, leading into a spacious gallery, communicating with the reception-rooms, appropriated to the instruction of servants, and the cloister of the convent. The other portion of the ground floor is occupied by the entrance for the sisters, the chapter-room, refectory of large dimensions with an open roof. The choir for the nuns, opening into the chapel, has two cut stone arches filled with screens.

The tower and spire are to be 180 feet high.* The first floor contains the community-room, 40 feet by 22 feet; noviciate, 34 feet by 22 feet; private school-room, hospital, cells, &c. The upper floor is occupied by all the sleeping-rooms or cells, with a gallery extending the entire length of the building, intersected by a transverse one. The style of architecture is that which prevailed at the end of the 13th and in the early part of the 14th century, and is being executed with rubble masonry and chiselled limestone dressings. The joists of the ceilings of the principal apartments are open and wrought, resting on templets supported by corbels.

* The upper part of spire is omitted in the view to admit of a larger scale for the rest of the building.

THE NEW ROOF AT EXETER HALL, STRAND.

WITH the view of improving Exeter Hall as a music room, and place for public speaking, very considerable alterations have been made, under the direction of Mr. S. W. Daukes, architect. The works are of so novel and ingenious a character, that we will go a little into detail, for the advantage of our readers.

The pillars with the entablature above supporting the hip trusses at either end of the hall, which curtailed the length nearly forty feet, have been entirely removed, so that the whole area of the hall is now thrown open. The flat panelled ceiling was removed, and the hall within the four outer walls is now covered with a coved ceiling, twelve feet higher in the centre than the former flat ceiling, all which has been done without disturbing the slating of the roof. It was a bold idea, and was effected by the introduction of wrought-iron arched girders, composed of plates varying in thickness from half an inch to a quarter of an inch, with angle iron at the top and bottom, stiffeners of strong T iron, and plates to cover the joints. These girders, put up in three pieces, were raised and supported in their places from the tie-beams of the roof, and were then riveted together with red-hot rivets, a furnace for that purpose having been erected in the roof. The ends of the girders were then supported upon smooth greased iron plates, to allow of the spread corresponding to the deflection of the arched girder without causing a thrust, or affecting the walls. Each girder, when it had been completely put together, and quite independent of any part of the old roof (which remained intact), was weighted with upwards of seven tons, the weight it would have to support, which was distributed over its length. The deflection from this process was one inch and an eighth, and the spread of the girder half an inch at each end, which took place on the plates, and so caused no thrust upon the walls. The girders, while weighted, were then bolted to one side of each of the old timber principals above the proposed coved ceiling, and then released of their weight.

Besides these girders there were two independent girders of a stronger construction, and nine smaller ones supporting the hips at either end; all of which were tested with corresponding weights.

This being done, *the whole of the original constructed parts of the roof, beneath the curved line of new ceiling*, and consisting of the tie-beams, queen post, and struts shown in figure 1, *were entirely removed*, when no visible deflection took place. Ceiling joists were then attached to the girders and the whole closely boarded over, with the exception of a number of circular openings, one over each chandelier, for ventilation.

The girders were calculated to support a weight of 64 lbs. per square foot, whereas the actual weight on them, we understand, is not more than 45 lbs. and the breaking weight 220 lbs. per square foot. The whole weight of the iron used is 75 tons, which, with the new ceiling, is one-third less weight than the original roof.

Mr. C. J. Mare, of Blackwall, constructed the iron girders, and Mr. G. Myers was the builder employed.

Fig. 1 shows a longitudinal section, with, on one side, the old ceiling and the interposing pillars which made each end of the Hall mere recesses, and on the other side the new ceiling,—2, the old roof and flat ceiling, transversely,—and 3, the new ceiling as formed by the girders.

THE LIVERPOOL BATHS AND WASHHOUSES.

A CORRESPONDENT who has recently visited the Baths and Washhouses now being erected for the corporation of Liverpool, in Cornwallis-street, has sent us the following particulars. The exterior of the structure is designed without any attempt at architectural display. The front is of stone, of the Italian style, simple in detail and general effect. The entire area occupied by the establishment is covered by four curvilinear roofs, which are made of galvanised corrugated iron sheets, and rough plates of glass, supported on wrought-iron principals. The portion of the buildings which runs parallel with Cornwallis-street contains the entrance-hall, lobbies, committee and waiting-rooms in the lower story, and ranges of

private first-class baths in the upper stories. In this part there are ten apartments of good proportions, each fitted with a bath for first-class bathers. There are thirty-three private bath-rooms for second and third-class bathers, which are designed so as to occupy a space above the dressing-closets of the large swimming baths. These private bath-rooms are each 8 feet square, and are furnished with looking-glasses and other requisites. The frames of the looking-glasses, and the hooks for hanging hats and clothes, are of glazed earthenware, and are, in consequence, kept in a state of cleanliness with little trouble. The handles of the doors are also of white earthenware, and each handle has figures in black, to denote the number of the room. The baths are made of Stourbridge clay, and are glazed in the interior.

The first class swimming-bath is 33 feet 6 inches long, and 26 feet wide; and the second and third class bath is 42 feet long, and 26 feet wide. These two baths are each contained under a separate roof, and the entrances are distinct. Portland cement is the material which has been used for the lining of the swimming-baths. We are informed that a simpler plan will be adopted at the baths which the corporation are about to build in Hyde-Park-street: bricks glazed on the side coming into contact with the water, will be built in cement, so that no additional internal coating will be required. A residence for the superintendent is attached. The cost of the whole is said to be 10,000*l*. The washing department is quite distinct from the baths, and will be entered by doors and passages at some distance from those leading to the baths: the ground-floor and a fireproof upper gallery of a spacious apartment are being prepared for the purpose. The washing-places will be each 5 feet 6 inches by 4 feet 6 inches, divided from one another by wooden divisions. We fear these divisions will prove rather perishable, and should have preferred the use of slate, as in London. The number of washing-places will be 88, of which 14 will be first class, 24 second class, and 50 third class. The apparatus for drying the clothes is being supplied according to the plans of the Patent Desiccating Company. By their process the articles are first put into a hydro-extractor, which is a perforated iron box made to revolve at so great a velocity (1,400 revolutions per minute, we believe) that the greater portion of moisture is thrown off by centrifugal force: in this partially dried state the articles are subjected to the heat of a stove, which soon evaporates the small quantity of moisture which remains.

MR. G. DONALDSON'S PLAN FOR REMOVING THE MUD FROM THE SERPENTINE.

The only objections which I have ever heard urged to the correction of the evil under notice, so far as the removal of the filth from the Serpentine is concerned, have been—

First, the danger to public health that would attend the exposure of the mud.

Second, the heavy expense that the operation would entail.

Now, neither of these objections can any longer be raised, a plan by which they are wholly obviated having been furnished to the Commissioners of Sewers by their agricultural surveyor, Mr. Donaldson. I became possessed of the document through the courtesy of Mr. Hertslett, until recently the much respected secretary to the commissioners; and I now hand you the pith of it. John Lilwall.

"I propose to lay down, temporarily, a two feet pipe from the Ranelagh Sewer into the lower end of the Serpentine, where it is deepest, and to enclose a space about 15 yards in length by 4 in width over the end of the pipe in the river with strong hoarding up to the level of the water, into which I mean to discharge the mud by means of barges, to be flushed through the pipe into the sewer, and thence into the river Thames, where there being already millions of cubic yards of mud of a much more objectionable quality, the addition of the few thousands of yards of mud we have here is of very little consequence.

And for taking up the mud I propose to have two barges coupled together side by side about 10 feet apart, bearing between them a square wooden tube 6 feet in width, 4 feet in depth, and 60 or 70 feet in length, the one end of it resting on pivots upon the two barges, the other being suspended by a crane or windlass with tackle for raising or lowering it, as may be necessary according to the depth of the water and mud; both ends of this tube being open, and when one end of the tube is let down into the mud, the barges being propelled forward, the tube will shovel up the mud, which, sliding up the inside of the tube, will drop into a tender at its upper end: by this tender the mud will be carried and discharged into the hoarding over the outlet pipe. Several tenders will be requisite for this purpose." The cost was estimated at about 1,100*l*.

GOTHIC *versus* CLASSIC.

THE LIVERPOOL ARCHITECTURAL SOCIETY.

Two meetings of this society have been occupied by a discussion of the question, "Whether Gothic or Italian architecture was most suitable to the general purposes of the present age and country?" It was opened by Mr. Barry, in favour of Gothic. Mr. Horner advocated Italian, as did also Mr. C. Reed. Mr. Rimmer and Mr. Boult supported the opener. The chairman, Mr. Picton, said that a great deal depended upon the association of ideas. It was only a man of cultivated taste that could relish architecture. The painter and sculptor, with his mind imbued with classical ideas, would naturally give the preference to the Italian style. On the other hand, the man who had dug deep into the mines of English history would turn with admiration to the Gothic. But he thought the Italian would recommend itself to any mind previously unbiassed and unprejudiced. A great deal had been said with respect to Gothic villa; and he was inclined to think that much that had been said was intended to apply to Elizabethan style, which was quite as much Italian as Gothic. He challenged opposition when he said that for almost any purpose for which building was required in the present age the Italian style was superior to the Gothic. The discussion was renewed on the second evening, and, on a show of hands, the society decided in favour of the Gothic by eighteen to twelve.

BATHS AND WASHHOUSES, WHITECHAPEL.

We have received from the Committee of the Model Establishment of Public Baths and Washhouses, Goulstone-square, Whitechapel, a register of the number of the washers, and the time occupied, with the description and the number of the articles washed, dried, and ironed during the week ending November 23, 1850. The total number of articles was 18,444, to dry which, 85 bushels of coke sufficed, at a cost of 1*l*. 8s. 4d.

The following statement, forwarded to us by Mr. Woolcott, showing the results after washing, wringing, and drying, at the "Model Establishment," is interesting:—

Description of the Articles.	Weight when dirty and before being Washed.	Weight after being Washed.	Weight after the Wringing Process.	Weight when taken from the Drying Chamber, Dry.	Time employed Wringing.	Time employed Drying.	Temperature of the Drying Chamber.
	lb. oz.	lb. oz.	lb. oz.	lb. oz.	Minutes.	Minutes.	Degrees.
Twelve Bathers' Towels.....	7 11	16 12	11 12	6 12	2	30	200
Ditto	7 13½	16 15	11 13	6 14½	2	25	210
Ditto	7 15	17 1½	11 14½	6 15½	2	35	190
Three Fine Sheets	4 15½	13 2	8 4	4 3½	2	15	180
Three Middling ditto.....	5 4	14 1	8 3	4 12	2	25	190
Three Coarse ditto.....	7 8	16 2	9 0	6 15½	2½	30	190
Three Small Blankets.....	6 15	22 15½	9 10½	6 3	2	15	200
Ditto	6 10	21 4	9 1	6	2½	15	200
Three Large ditto	9 1	24 14	12 3	8 12	3	25	210

EXTENSION OF PALL MALL.

The charge of inaccuracy objected by "W." demands a short rejoinder. He asserts that "Lord Ellesmere's house, so far from ranging with the north side of Pall-mall, would stretch about half across the opening, and thus interfere with the realisation of the sylvan vision of Quondam."

Now, the fact is not so—for the south-east angle (the most prominent) advances just 25 feet before the range of the said north side: at its termination, Pall-mall is 66 feet wide (opposite to Marlborough House), and there are two houses in St. James's-street, which, looking eastward, front the chaussée—that at the corner (the St. James's-chambers) has a frontage of 47 feet, and Graham's Club 21 feet.

If the former only were razed, there would be an opening of 41 feet, in view from the other extreme of Pall-mall, and at that distance Lord Ellesmere's mansion would be hardly perceptible except from its altitude; but if Graham's Club were also removed, then the portion of the very elegant structure before referred to would form a not undignified nor inappropriate final block to the noble thoroughfare in contemplation, and the characteristic finish of just that portion of the edifice would seem to indicate, that the architect had some prescience of the opening suggested; for the ornate portion of the east flank extends but 26 or 27 feet.

The antiquated and mean character (for that location) of the houses, points out the expediency of modernizing, if not of clearing them away altogether. Should such clearance be made, one of the finest piazzas of the town would surround the Old Palace, which, in its turn, must undergo some transformation consistent with the progress of taste and the spirit of the time,—alterations which should humiliate the aspirations of the noble Sutherland Palace, and the still more florid pretensions of Lord Ellesmere's, which at present is beyond compare the most finished production of recent domestic architecture in London.

From the centre of Pall Mall no greater vista could be attained than an aperture of 41 feet might disclose, yet on nearing Marlborough House, the whole width of the Largo of the palace comes into the field of vision, and an opening of above 80 feet in front of Lord Ellesmere's (between that and the southward block of houses facing the Green Park) would reveal the park as far as Buckingham Palace, and the trees of the gardens, as a background (if you will excuse the Hibernicism) or a "sylvan vision." Quondam.

THE RESTORERS OF LLANDAFF CATHEDRAL.

I have only just seen—being absent from home when the monthly part arrived—your notice of my work on Llandaff Cathedral. I hasten, therefore, to correct, through your means, an erroneous impression into which an inadvertent expression of mine, in page 93, may perhaps have led you. I ought to have mentioned Mr. Wyatt as having been employed upon the restoration as well as Mr. Prichard. I believe that the work was commenced by the latter alone, and is now continued by them as joint architects.

The omission was a very pardonable one, as Mr. Prichard, being resident on the spot, and being in close communication with myself, was naturally much more in my thoughts; and indeed, speaking without professional precision, the work might be much more strictly said to be "under his superintendence" alone. Still, as Mr. Wyatt had a share in the design, and as his name is mentioned as joint architect in Mr. Cliffe's Book of South Wales, and in the Dean of Llandaff's paper, printed in the "Archæologia Cambrensis," I ought not to have made the omission.

I do not see that I have done Mr. Wyatt any wrong; but, in case he should be of a different opinion, I have taken this first opportunity of reparation. I have freely pointed out a few respects in which I do not agree with the restorers; but the work, as a whole,

is one which must add to the reputation of every one concerned.

With regard to the nave roof, my own conviction is very decided, that a flat ceiling, something like Peterborough, was at least *designed;* but I am quite open to be convinced to the contrary by yourself or any other competent person. EDWARD A. FREEMAN.

GIBBONS'S WOOD CARVINGS.

AFTER a period of repose, during which little was attempted in architectural or ornamental decoration to call for the exertion of the abilities of the artist in this branch of design, the architect and wood-sculptor once more were associated, and Wren (who possessed the eye of the artist with the knowledge of the architect) and Gibbons worked together. Pre-eminent skill and taste were displayed in these more modern specimens of the art. The dining-room was enriched with representations of the spoil and weapons of the chase; fruit, flowers, game, and fish, hung in rich arrangement and profusion on the walls; over the doors were splendid trophies of the seasons or the elements, the inter-panelling, borders of glasses, or the frames of pictures, were in perfect keeping with the rest, taken from the designs or pictures of Snyders or Rubens. In the decoration of the library Gibbons was equally happy in his choice of subjects; portraits of great men, clusters of gems, medals, and coins, trophies of music, musical instruments, and implements of art, here found place. Gibbons had a most masterly manner of grouping and pressing into his service objects no other person would have dared to venture upon; he was the founder of a new school, and he had studied only in that of nature; lace, nets, strings of pearl, shells, weeds, ferns, and flowers, streaming amidst fish, birds, sceptre, coronet, and sword, require, for a proper arrangement, no slight knowledge of and power to produce effect. His correctness in delineation was such, that when tested by comparison with nature, the feathers of a plover were found perfect, even to the number. Gibbons had a peculiar manner of drawing and composing his subjects in his trophies and most of his drops: he appears to have made a rough draft of some general idea in outline only, then carefully to have drawn one side of his subject within this limit, to have then turned the paper over, and, tracing the outline, filled it up in keeping with the other side. This is so perfectly visible in some of his compositions, that the same block of wood would work either side. This remark will apply to most of the drops in wood or stone at St. Paul's, Hampton Court, Windsor, and the Board Room at the New River Head: an open flower on the one side has the half closed or back flower on the other. Gibbons worked from a very limited variety of flowers, and these were of a nature to be easily and boldly worked. The greatest quantity of Gibbons's carving in London is at St. Paul's,—all the flower-work of the choir, screen, and organ, is his, as also the greater portion of the stone ornament within and without: the four grand ovals in the stonework under the dome, and the two entablatures over the north and south doors, are wonderfully worked. It is known that many Flemish carvers were employed on the work, and their style of carving is very apparent, particularly over the window of the south and east outside work: the flowers are more various, but the effect is bad; they are worked to a nearer sight, but in their place, at the required distance, they form a heavy and confused mass: with Gibbons, on the contrary, the character of the relief was perfectly studied and carried out. The altar of St. James's Church, Piccadilly, is enriched by him, but an attempted reparation has destroyed much of its original character, for some Goth has caused it to be *painted*.*

"THE CHIMNEY KING."—"THE CURE, CAUSE, AND PREVENTION OF SMOKY CHIMNEYS."—On the strength of an advertisement in our own pages, we purchased the pamphlets (as we expected to find them) so headed, and owe it to our readers to say that the whole affair is a mere catch-penny piece of quackery.

* From the *Journal of Design*.

Miscellanea.

TO REMOVE THE STAIN OF PORT WINE FROM MARBLE.—Some correspondents have asked us how to do this. We are not aware of any nostrum to be applied to the surface of white or veined marble that will extract port wine or other vegetable stains. We give a plan recommended by Mr. C. H. Smith, but this can only be put in practice by a mason or other person having convenient premises and implements. Suppose the article stained to be a slab, such as the shaft of a chimney-piece or top of a table; the only successful mode of procedure is to open the pores of the marble by rubbing it on both sides with sand and water, so as completely to remove the polish; then lay it, exposed to wind, rain, and all atmospheric influences, in a bed of clean, wet sand, from a quarter to half an inch thick, the sand to surround the marble up to its thickness, so as to be level with the upper surface: thus situated, the marble and sand should be sluiced with clean water two or three times a day, until the stains have quite disappeared, which probably will occupy ten or fifteen days; the marble is then to be repolished in the usual manner. White marble is so very delicate, and so easily stained, that great care is requisite in the above process, that the article on which the sand is laid will not impart an additional stain: the best material is new stone of any kind, or new deal boards.

IRON AND GLASS BUILDINGS.—Permit me to suggest that an exhibition of designs for *ferrivitreous* edifices (to coin a word) in the Exhibition of 1851 would be appropriate. There can, I think, be little difference of opinion as to the effect the great exhibition will have in giving impetus to the construction of buildings of a like character. I think it probable that Russia, at least, will desire to possess something like, if not more extensive than, our glass building. The emperor intends to visit it (it is said) in person. It is not beyond the compass of possibility that a structure of glass and iron will one day exhibit to the beholder the flora of the universe, as the great glass case will the works of art of the whole world. Perhaps, too, it will share, on the opposite side of the river, the attention, the admiration, and the wonder of the visitor to the new Houses of Parliament. Raised on lofty arches, and towering higher than any glass-iron edifice yet constructed, such a building might be appropriately reared in the locality named. Be this as it may, I am desirous to impress THE BUILDER, and English architects in glass and iron with the "great fact," that there is wide scope for the display of artistic taste, skill, and genius, in this new kind of edification.—OPIFEX.

DIRECT LINE OF STREETS FROM OXFORD-ROAD TO SHOREDITCH CHURCH.—Your columns are often usefully occupied by suggestions for street improvements. I will briefly submit for consideration what for many years has been a favourite scheme of my own. We want a direct thoroughfare from the western to the north-eastern extremities of the metropolis, ending at Shoreditch Church; and without the necessity of threading the mazes of the City streets. An inspection of the map will show the wide line of Old Street-road, now comparatively little used, terminating as it does abruptly at the Charterhouse-wall, in Goswell-street. To get any farther westward is pretty nearly impracticable. To cut short all matters of detail, what is requisite is to carry on the said line of road through to Holborn, terminating, if possible, somewhere about Middle-row. Let us see what this would accomplish. A new approach to St. John-street and to Smithfield would be opened for hay and cattle, saving much traffic through crowded streets. Crossing St. John's-square to Clerkenwell, it would render the Sessions-house approachable and intersect the new street now forming from Blackfriars-bridge towards the north and north-western roads. Holborn-hill, Smithfield, and much delay would be avoided, shortening distance, whilst the Shoreditch railway station would become less inaccessible from the west. If we take a survey of the property along my proposed line from end to end we shall find it to be of as little comparative value as any perhaps in the metropolis. Make it accessible, and a vast length of good frontage would become available, at an enormously increased value. And what a gain in public comfort and convenience to be enabled to pass in nearly a straight road, uninterruptedly, from Oxford-street to the great outlets at Shoreditch Church.—H. T.

STREET OBSTRUCTION FROM GAS PIPES.—A case of some importance to contractors has come before Mr. Bingham, at Marlborough-street, who thus states his decision:—In this case a contractor under the Western Gas Company placed several lengths of gas pipe close to the kerb-stone, east of the Opera House, preparatory to being placed in a trench to be excavated. The pipes projected three or four inches above the kerb-stone, and lay three or four days. The complainant stumbled over one of them, fell, and was bruised and endangered. A local Act of the 5th William IV. gives the commissioners power to authorise contractors to lay down gas pipes, and the 65th and 70th sections of the General Paving Act, 57th Geo. III. c. 29, tend to show that a penalty cannot be inflicted by a magistrate where work is done [as in this case by consent, or] to the satisfaction of the surveyor of the pavement; while the 36th section of the local Act reserves to persons suffering loss or damage from the carelessness or want of skill of any persons employed by the contractors the remedy of indictment or action. It appears to me, therefore, that a magistrate has no jurisdiction in circumstances such as the present, and the summons must be dismissed.

BRITISH ARCHÆOLOGICAL ASSOCIATION.—At a meeting, on November 27th, Mr. Pettigrew, V.P., in the chair, communications were received from Mr. Brent, of Canterbury, and Mr. Brockett, of Gateshead; also from Mr. J. Taylor, of Colchester, recording the discovery of an inscription upon a large stone found in the Roman burial place in his grounds near the town; from Rev. H. Jenkins, of Stanway, upon parts of Colchester Castle, which he considers to be the remains of a Roman temple, and a detail of excavations made near the castle, which he thought supported his views; and from Mr. W. D. Saull, describing some interesting stone circles and other remains which he had lately visited in Cornwall. Models were exhibited, and Mr. S. gave his views generally upon the subject. This produced a lengthened and instructive discussion which stands adjourned to the next meeting, December 11.

HORNSEY AND THE SEWERS' COMMISSION.—A determined stand is being made by the rate-payers of Hornsey against the steps taken by the Metropolitan Sewers' Commission to bring them under the operation of the Sewers Act of 1848. A meeting was held on the 27th ult., at which a strong protest was unanimously agreed to, and funds subscribed, to enable a committee then appointed to resist the obnoxious measure.

NATIONAL BATHS AND WASH-HOUSES IN FRANCE.—In the Legislative Assembly, on Saturday last, a debate took place on a Bill proposed by M. de Melun for opening a credit of 600,000 francs for cheap baths and wash-houses for the poor. M. Raudot and M. Adelswaerd objected to the injustice of taxing the country for the advantage of the town. What the town populations suffered from was not want of cleanliness, but moral degradation, which made them sink far below the level of the inhabitants of towns in England. The House decided by 371 votes against 272 to proceed to a second deliberation.

LOW TENDERS AND BUILDERS' BANKRUPTCY.—A contractor has sent us some stringent and injurious remarks on Mr. Trego's bankruptcy, and is very angry with us for not publishing them. We adhere, however, to our determination. He states that the debts amount to 70,000*l.* and that the assets to meet them are comparatively *nil*. To explain this would not be difficult, if many of the contracts entered into by the party in question were like one which is just now before us. Mr. Trego had contracted to build four houses in the Gloucester-road, Bayswater, for Mr. Froom, for 2,800*l.* The work done when the stoppage occurred was valued at 800*l.* Fresh tenders were then sought to *complete* the carcases, and the following were sent in:—

Glenn.....	£3078
Fry and Son	2849
Lawrence	2755

Comment is unnecessary.

Boiler Explosions.—The echo of one of these explosions never dies away, as we have noted, till the noise of another *accident* of the same class supervenes. They go off in regular succession like funereal cannon. A fatal explosion occurred at Bradford on Wednesday week, and while the *Times* of the following Friday was with sorrow recording the circumstance, another was in the act of taking place at Halifax, "much more serious in its consequences." In the former case three lives were lost, but in the latter, thirty young people and children were buried in the ruins of a mill, and many of them killed and wounded. Inspectors, we hope, will be appointed, when some grand explosion takes place below the Parliament Houses while the Lords and Commons are in full conclave: nothing short of that, we fear, will do.

Electro-telegraphic Progress.—Messrs. Hoe and Co., New York, have connected their counting-room in the city with their business establishment, two miles off, by means of Morse's telegraph, at a weekly expense which is said to be quite a trifle. The *New York Herald* anticipates that the telegraph will yet be used in all large manufactories in place of errand boys, and that the police of every large city will soon find it indispensable.——The British Electric Telegraph Company have arranged to commence operations forthwith, at Belfast, for crossing the channel to the opposite Scottish coast on the one hand and for running the same line on to Dublin on the other.——The Liverpool Dock Committee have under consideration a letter from Mr. Edwin Clarke, proposing to connect Holyhead, Point Lynas, and Great Ormshead, by electric telegraph, with Liverpool, in order to supersede the present imperfect marine semaphore.

The Iron Trade.—A combined movement of the magnates has taken place virtually for the purpose of sweeping away a number of the smaller masters in Scotland. Meetings have been held in London, Liverpool, Manchester, and Glasgow, to denounce the *scrip* system, by means of which many of the poorer and cheaper manufacturers in long-headed Scotland have no doubt been kept afloat by the merchants, and an unhealthy activity now excited at a time when lassitude and repose more naturally supervene on late exertions. Were continental countries, *still to be net-worked with railways*, ready to call soon for such exertions, the conspiring movement against Scottish scrip might seem to be more oppressive and objectionable than it really may be, but it is clear that there must be a pruning of superfluous branches somewhere, and of these by all means let the more unwholesome ones be first lopped off.

Royal Institute of Architects.—At a meeting on the 18th ult. Mr. C. Fowler in the chair, a paper was read by Mr. Wyatt Papworth, "On the Peculiar Characteristics of the Palladian School of Architecture," being a portion of the essay for which the silver medal of the Institute was awarded in Session 1848-49. At the following meeting, on the 2nd inst. a discourse "On Polychromatic Decoration in Italy, from the Twelfth to the Sixteenth Century," was ably delivered by Mr. Digby Wyatt, Associate, and led to a long and interesting discussion, to which we shall recur. At the same meeting Messrs. Ewan Christian and Christopher Eales were elected as Fellows from the class of Associates.

The Light and Health Tax.—It is said, we know not on what sufficient authority, that next session of Parliament there will be no proposal to repeal the tax on the part of Government, but that some changes of an important character will be recommended. One of these is to render permanent the present amount of tax on all houses now assessed—permitting the owners or occupiers to open as many new windows as they may choose to have, without any increase of charge; whilst another would apply to new erections, and probably to houses not now assessed, but which, from enlargement or other causes, may become liable to assessment hereafter.

Improvement in Boulogne Harbour.—The French Government has voted 70,000 francs towards the completion of the stone bridge now in course of construction at Boulogne, with the promise of a further sum of 80,000 francs during the next year.

Crossing City Thoroughfares.—A correspondent suggests that a lighted subway with shops (which would soon pay expenses), should be formed under the street crossing from Fleet-street to Ludgate-street, and another from Bridge-street to Farringdon-street, as the thoroughfare there is really frightful and dangerous. A previous correspondent suggested the formation of light foot-bridges above the streets for such thoroughfares. Both of these plans have before been discussed in our columns. Enormous as is the traffic in omnibusses and cabs, waggons and bullocks, along Fleet-street, at certain hours, it is even more so along King William-street and London-bridge. There, too, the street is considerably wider, without even a halting-place in the middle, where it begins to be at the worst, near the Monument: there any tedious attempt to cross at particular hours is, indeed, most dangerous and fearful. The obviation of risk to the foot passengers in crossing such thoroughfares, in whatever way effected, would be a most useful work, and is every day becoming more urgently necessary. Could not something be done before the hubbub of next year takes place? Perhaps no improvement whatever will be more essential than this. We hope that the projected alteration of London-bridge itself, for behoof of foot passengers, to which we have already called attention, is not being lost sight of.

Compensation: Battersea Park.—According to the newspapers, a jury was summoned last week at the Horns Tavern, Kennington, for the purpose of adjudicating on a claim for compensation made by Mr. Payne against the Commissioners of Woods and Forests, in respect to some land at Batterseafields, about to be appropriated for the purposes of the park in that locality. Mr. Lawes attended on behalf of the Woods and Forests, and Mr. Bovill on the part of the claimant. Mr. Bovill, before the jury was sworn, claimed a sum of 94,800*l.* as a fair compensation for the value of the land about to be appropriated from his client. He subsequently consented to reduce it to 60,000*l.*, and finally consented to take 35,000*l.*, subject, however, to the adjudication of Mr. Tite. This was arranged without the jury being sworn.

The Water-Gas in America.—A corps of gas-engineers or others interested in coal-gas companies, as our readers may recollect, some time ago *reported* on the water-gas alleged to have been discovered in America by a Mr. Payne, and, in the general opinion, both here and in the States, totally extinguished the alleged improvement. To this opinion we demurred giving our adhesion, at the time, not so much from any *à priori* assurance of the integrity of the discoverer, which, however, we had no particular reason, on the other hand, to doubt, but, as we stated, from our previous knowledge of the *animus* with which endeavours to obtain cheap and good gas in this country had been met by interested parties here. We have, therefore, ever since been on the out-look for some further and more satisfactory account of the process, which, it may be recollected, was to be fully tested by a trial of it, to take place at Astor House, New York. It now appears, from a paragraph in the *New York Express*, not only that this trial has been made, a trial of *four months* duration, and that the result is perfectly satisfactory, but that a company, with a capital of 500,000 dollars has been formed, under the name of "The Union Gas Company," for the purpose of carrying out the patent throughout the whole of the United States,—that ready purchasers for separate States have been got by spirited bidding at auction,—and that the capital stock is now at a premium of 119,600 dollars. The gas is to be sold "at one-fourth of the price of coal-gas."

The Value of a Parenthesis in a Specification.—A correspondent, who has lately made some repairs, sends the following extract from the specification, which he says is strictly correct, and asks whether under this clause the articles mentioned belong to him or his employer: the writer had calculated on removing them as his own. "The builder to use or take away all material coming down (except coppers) and the sundry articles belonging to —— as per inventory inclosed for the sum of ——." As the clause stands, he would seem to be justified in his view; but there can be little doubt that it was intended to end the parenthesis at "inclosed," instead of "coppers." Probably in the original specification this will be found the case; and we have printed the inquiry as a reminder to our readers of the necessity for care in copying, and the value of a line. In the present case the mistake may apply only to a small amount,—it might equally involve a large one.

Masons' Short-time on Saturday.—Mr. Myers, builder, was summoned last week by a mason for ninepence, of wages, deducted for short time, work being left off at four o'clock in place of half-past five on Saturday. Mr. Myers said that he did not desire to restrict the workmen, or deprive them of their short Saturday, and resisted only on principle, as he conceived that the masters ought to have had six months' notice, to enable them to finish current contracts, and to make allowance in those of future time. He had already sustained a loss of 500*l.* by being called on to bear the whole burden of this small difference of time, and if carried out, that loss would extend to no less than 3,000*l.* on the whole of his contracts. His defence was, that Friday closed the workman's week, and Saturday formed the beginning of a new week, for which the time employed only could be charged. Mr. Norton agreed with this view, and dismissed the summons,—a course, he considered, the most advisable for the men themselves.

New Move in London Mechanics' Institution.—It is proposed, in a pamphlet recently published,* to establish a "Birkbeck College," in the place of the present London Mechanics' Institution, with library and reading-room, lectures, and classes,—the last of these divisions further sectionised into a literary, a scientific, and an artistic section, comprising languages, &c., in the first; mathematics, chemistry, physiology, &c., in the second; and drawing, music, and book-keeping, in the third,—the instruction to be simple but comprehensive, and preparatory to matriculation at the London University. The subscription for each class, it is thought, should be from one to two shillings a month of four weeks, for instruction twice a week; for the lectures, one shilling a month of four lectures, to members and subscribers,—sixpence and one shilling each to the public; and for the library and reading-room, sixpence a month to students or members, and a shilling to the public. It is calculated (how correctly we will not say) that the institution would thus not only be self-supporting, but yield a surplus of about 160*l.* a year, independent of lectures and theatre letting.

Kent and Surrey Turnpike Roads.—On Wednesday these tolls, after a sharp competition, were purchased by Mr. Morris, agent for Messrs. Levy, the largest toll contractors in the kingdom, for 11,590*l.*, being an advance of 875*l.* on the sum realised last year.

Architects' Benevolent Society.—Mr. Mair wishes us to state, with respect to our notice last week, that although he was one of the first to move in this matter, the title of "Originator" belongs to the present Honorary Secretary, Mr. Turner.

TENDERS

For completing five houses for Mr. Payton, Derby: Mr. G. Hall, architect:—

Cooper, Derby (highest)	£3,386	5	0
Moody, Derby	3,190	5	4
Wood, Derby	3,034	0	0
Thompson, Derby	3,000	0	0
Hall, Nottingham	2,946	0	0
Green, Derby	2,925	10	9
Bradbury, Derby	2,916	0	0
Thompson, Derby	2,837	10	0
Nadin, Derby	2,832	8	0
Tyas, Grimsby	2,496	0	0

Architect's estimate, £3,098.

Separate tenders for the plumbing and glazier's work:—

Keeling	£282	8	0
Foreman	261	19	0
Crump	254	14	0

Printed quantities furnished to each contractor by the architect.

For erecting a chapel and schools at Upper Clapton, for Mr. A. W. Alexander: Mr. Emmett, architect. The estimates were made from two separate designs marked A. and B. Bills of quantities supplied:—

	A.	B.
Holland	£9,397	£7,097
Little	9,825	7,151
Ashby and Sons	8,714	6,060
Piper, T. and W.	8,452	5,800
Myers	7,316	5,618

* "Can the London Mechanics' Institution be made Self-supporting, and how?" Pushee, Mason-street, Cornwall-road, Lambeth.

TO CORRESPONDENTS.

"*Flour Mill in Thames-street.*"—With reference to our notice of this building we are asked to state that the concrete used was formed with Greaves's Blue Lias Lime, and not Portland Cement. Another correspondent says that Mr. Ponsford was not the contractor, but the deviser, and is also part proprietor of the building.

"*Impervious Walls.*"—I should be obliged by any of your correspondents informing me whether the plan of rendering stone and brick buildings impervious to wet by the application of a solution of soap and then another of alum, as alluded to in your number for October 5, page 478, be applicable to walls that have been coated with *mastic* in the ordinary way? And also whether a solution of soft soap in cold water, as mentioned at page 490, has been tried and found equally efficacious? Is there no danger of this latter causing an unsightly change in the colour of the material acted upon, especially mastic or light-coloured stone?—J. F. H.

"J. C. P." (we have already stated as much), "J. T." (on broad grounds, A. does not forfeit his right to a light by pulling down and rebuilding the wall containing it. Take advice of one who can see the spot and knows all the circumstances), "G. W.," "W. B.," "W. W.," "H. R.," "Constant Reader" (all depends on the local regulations and the words of the arrangement. On the broad principle we should assert the right of erecting the monument on our *own* soil), "G. L." (we have not time to comply with such requests), "C. B. A.," "W. A. P.," "W. C." "An American," "J. J. L." (we are not disposed to engrave the drawings sent, and regret the trouble taken), "C. S.," "T. W." (thanks), "J. E.," "Westminster Bridge," "Z. W. D.," "R. G.," "Sanitary Reform: Model Town Dwellings at Bow for the Industrious Classes, with Plans, Elevations, Sections, &c. &c. To which is prefixed an Essay on the Sanitary Movement." By W. Wigginton, Architect: Weale, London. "Labour and the Poor: Report of the Speech of Mr. Henry Mayhew, and the Evidence adduced at a public meeting convened by the Committee of the Tailors of London." "The Girlhood of Shakspeare's Heroines." No. 1. By Mary Cowden Clarke: Smith and Son, Strand. "Penny Maps." No. 5. Chapman and Hall.

"*Books and Addresses.*"—We have not time to point out books or find addresses.

NOTICE.—All communications respecting *advertisements* should be addressed to the "Publisher," and not to the "Editor:" all other communications should be addressed to the EDITOR, and *not* to the Publisher.

ADVERTISEMENTS.

ARCHITECTS' BENEVOLENT SOCIETY.—At a numerous Meeting of the Members of the Profession, and Subscribers, held at the Freemasons' Tavern, on Wednesday, the 27th of November, SYDNEY SMIRKE, Esq., A.R.A., in the chair, the following resolutions were passed unanimously:—

Moved by the Chairman; seconded by C. R. Cockerell, Esq., R.A.:

That it is the opinion of this meeting that it will tend to the honour and well-being of the Profession of Architecture in England, that a Society, to be called the "Architects' Benevolent Society," be established, and be it hereby established.

Moved by Wm. Tite, Esq., F.R.S.; seconded by David Mocatta, Esq.:

That the Rules of the Society as now read be adopted:—

RULES.

1. That the object of the Society be limited strictly to benefit those engaged professionally in all branches connected with Architecture, excluding only such as have in any way been engaged in, or are deriving emolument from, the executive department.

2. Annual Subscribers of One Guinea, or Donors of Ten Guineas in one donation, to be Members, whether professional or otherwise, and will be entitled to vote and take part in the proceedings at all General Meetings, and in the election of Officers and Committee of Management.

3. The President, Treasurer, and Honorary Secretary, to be elected annually by the general body of the Subscribers at the Annual General Meeting, and to be ex-officio Members of the Committee of Management.

4. The Trustees to be elected by the Members of the Society at their first General Meeting, and to be ex-officio Members of the Committee.

5. The Committee of Management to consist of not more than Fourteen, nor less than Twelve Members, exclusive of the President, Treasurer, Trustees, and Honorary Secretary, to be elected at the Annual General Meeting, one-third of whom are to go out in rotation, but are eligible for re-election.

6. The Committee of Management to be empowered to appoint the Assistant Secretary and such other officers as they may find necessary for the efficient working of the society, and to fix their Salaries and remunerations.

7. The Committee of Management to enquire into the qualifications and merits of the Applicants for relief, being guided therein by the Rules and By-laws of the Society, and to regulate and control generally the affairs of the Society.

8. The qualification of a Candidate for relief shall be the attested fact that he has been duly educated in an Architect's or Surveyor's Office, or that he has produced any valuable invention, or any work of art useful to the profession.

9. Subscribers to the Society to have in all cases a preferable claim to relief.

10. Two Auditors to be appointed at the Annual General Meeting. A detailed statement of the Accounts, when audited, to be delivered annually to every Member.

11. An Annual General Meeting of the Society shall be held on the second Wednesday in March for the purpose of receiving a Report from the Committee of Management; for the Election of Officers; and for the General Purposes of the Society.

Moved by T. H. Wyatt, Esq.; seconded by G. R. French, Esq.:

That the Officers and Committee who have been acting provisionally be elected to their respective duties.

PRESIDENT.—SYDNEY SMIRKE, Esq., A.R.A.

TRUSTEES.

Charles Barry, Esq., R.A.
Charles Robert Cockerell, Esq., R.A.
Philip Hardwick, Esq., R.A.

TREASURER.—William Tite, Esq., F.R.S.

COMMITTEE.

William Barnes, Esq.	William S. Inman, Esq.
Francis Edwards, Esq.	George Mair, Esq.
Benjamin Ferrey, Esq.	David Mocatta, Esq.
William Grellier, Esq.	James Pennethorne, Esq.
George Gutch, Esq.	Ambrose Poynter, Esq.
Edward Charles Hakewill, Esq.	Anthony Salvin, Esq.
Edward P'Anson, jun., Esq.	George Smith, Esq.

CONSULTING COUNSEL.—Edward Smirke, Esq.

HONORARY SECRETARY.

John Turner, Esq., 4, Lower Belgrave-street.

Moved by Benjamin Ferrey, Esq.; seconded by T. T. Bury, Esq.:

That Henry Roberts, Esq. and Henry Baker, Esq. be the Auditors of this Society.

Moved by Wm. Tite, Esq., F.R.S.; seconded by H. E. Kendall, Esq.:

That the best and most sincere thanks be presented to Sydney Smirke, Esq., A.R.A., for his anxious attention to the interests of this Society, and for his conduct in the chair this day.

Adjourned to the second Wednesday in March next, at three o'clock.

PROVIDENT INSTITUTION OF BUILDERS' FOREMEN.—NOTICE IS HEREBY GIVEN, that a SPECIAL GENERAL MEETING of the MEMBERS of this Institution will take place at the Bay Tree Tavern, St. Swithen's-lane, on Wednesday Evening, December 11th, for the purpose of considering and adopting such alterations in the present rules, or additions thereto, as such meeting may there and then determine.

W. ALLARD, Secretary.

LONDON ASSURANCE CORPORATION.—Established by Royal Charter, in the reign of George I., A.D. 1720, for LIFE, FIRE, and MARINE ASSURANCES.—Head Office, No. 7, Royal Exchange, and Branch Office, No. 10, Regent-street.

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This Corporation has effected assurances on lives for a period of 130 years.

Fire insurances effected at moderate rates upon every description of property.

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1. Members of Building Societies can insure in this office, payments becoming due after their death, thus saving their families from inconvenience and loss.

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4. Premiums on the half credit system, extension of limits for residence and voyaging, without extra premium, and naval and military lives (not in active service) assured at ordinary rates.

For prospectuses, with tables of premium, information, &c., apply to HENRY WILLIAM SMITH, Actuary and Secretary.

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CONDITIONS.

Liability of the entire body of shareholders unlimited.

FIRE DEPARTMENT.

Agricultural, manufacturing, and mercantile risks freely insured—Foreign and Colonial insurances effected—Premiums as in other established offices—Settlement of losses liberal and prompt.

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Premiums as low as is consistent with safety—Bonuses not dependent on profits, being declared and guaranteed when the policy is effected—Surrenders of policies favourably dealt with—Thirty days allowed for the renewal of policies—Claims paid in three months after proof of death—Policies not disputed, except on the ground of fraud.

Full prospectuses may be had on application at the offices of the company as above, or to any of its agents in the country.

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Montgomery Gladstone, Esq., Manchester.
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The Insurances undertaken by this Company are comprised under the following heads, and the Premiums are arranged proportionately to the risks to which the several classes of society are found to be exposed.

A.—INSURANCES AGAINST DEATH BY ACCIDENT OR VIOLENCE, whether occasioned by Railway Travelling or otherwise.

To Insure £100.

Class I.	Class II.	Class III.
2s. 6d.	5s.	7s. 6d. to 40s.

B.—SIMILAR INSURANCES accompanied with a provision for Compensation in the case of a serious Accident which does not terminate fatally.

The compensation includes a weekly allowance and a sum for medical expenses.

Fatal Accidents.	Weekly Allowance.	Medical Expenses,* not exceeding	Annual Premium payable by		
			Class I.	Class II.	Class III.
£.	£. s. d.	£. s. d.	£. s. d.	£. s. d.	£. s. £. s.
50	0 10 0	1 0 0	0 0 0	0 8 0	0 10 to 1 5
100	1 0 0	2 0 0	0 12 0	0 15 0	1 0 „ 2 10
300	1 10 0	3 0 0	1 1 0	1 10 0	0 0 „ 0 0

* These expenses are not allowed where medical attendance is provided by the Company.

Sums different from those stated in the table may be insured, on paying a proportionate premium.

C.—INSURANCES AGAINST DEATH BY RAILWAY ACCIDENT, accompanied with compensation in case of non-fatal injury.

For an Insurance of 1,000*l.* in case of death, with compensation in case of injury.

Annual premium, 10*s.*

Premium for the whole of life, 8*l.* 8*s.*

Prospectuses, forms of proposal for insurances, and further information to be had at the offices of the Company, or from any of the Company's Agents.

WILLIAM YOUNG, Secretary.

TO DRAUGHTSMEN AND CIVIL ENGINEERS.

H. MORRELL, BLACK LEAD PENCIL MANUFACTURER, No. 149, Fleet-street, London.

These Pencils are prepared in various degrees of hardness and shades.

H H H for drawing on wood.	F F light and shading.
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H H for engineering.	B black for shading.
H for sketching.	B B ditto ditto.
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	B B B B ditto ditto.
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Sold by all the principal Stationers in town or country.

FREE EXHIBITION of the INVENTIONS of 1849-1850.—This Exhibition is NOW OPEN, at the SOCIETY OF ARTS, 18, John-street, Adelphi, from Ten till Four, DAILY—Admission by introduction from a member, or on purchase of the Catalogue. Price 6*d.*

NOTICE.—During the Week of the Cattle Show, the grand and much admired MOVING PICTURE of LISBON, representing the great EARTHQUAKE in 1755, will be exhibited at the CYCLORAMA, Albany-street, every Evening this week, at Half-past Seven and Nine o'clock, illustrated by appropriate music on the Grand Apollonicon.—Admission One Shilling.—N.B. Entrance ONLY in Albany-street, Regent's-park.

THE PORTLAND GALLERY, 316, Regent-street, Langham-place, opposite the Polytechnic Institution, will OPEN on MONDAY, the 9th of December, 1850, with a GRAND MOVING DIORAMA of the GANGES, with Calcutta and Juggernaut. The entire Diorama invented and painted by Mr. T. C. DIBDIN, from Sketches by J. Fergusson, Esq., made on the spot during his residence in India. Doors to open at Half-past Two and Half-past Seven, p.m. The Overture to commence at Three and Eight, p.m.—Admission, 1*s.* Reserved seats, 2*s.* 6*d.*

SMITHFIELD CLUB PRIZE CATTLE SHOW and EXHIBITOIN of IMPLEMENTS, SEEDS, ROOTS, &c., commences TUESDAY MORNING and closes FRIDAY EVENING, 10th, 11th, 12th, and 13th December Bazaar, King-street, Portman-square.

The arrangements this year are upon a more extended scale, and marked by the usual attention to the comfort of visitors, thereby enabling ladies to view this national exhibition with facility.

CHEAP ORNAMENTAL GLASS.—I beg to inform my friends and the public, that I have now completed a new ENGINE, and, owing to the facility with which I can execute orders, I am enabled to reduce my former prices considerably. The prices are now from ONE SHILLING PER FOOT SUP., and borders from SIXPENCE PER FOOT RUN. A large quantity of the cheapest patterns always in stock. Embossing and painted work on the most moderate terms.—CHARLES LONG, No. 1, King-street, Baker-street, Portman-square.—Cash only.

THOMAS MILLINGTON begs to inform BUILDERS and the Trade that he can supply them with FOREIGN and ENGLISH WINDOW GLASS, Plain and Coloured, of every description. ROUGH PLATE-GLASS from ¼ inch to 1 inch thick. Glass Pantiles, Slates, &c. &c. White Lead, Paints, Colours, Oils, Varnishes, Brushes, &c.; Milled and Sheet Lead; Lead Pipe from ¼ inch to 4½ inches bore; Solder, Water-closets, Basins, Plumbers' and Brass Work of every description, and upon the very best terms. Glass Ornament Shades, Milk-pans, Propagating and Bee Glasses.—Address, 87, Bishopsgate-street Without.

See Priced List Advertisement, Saturday, June 15.

BELGIAN SHEET GLASS.—Builders and Consumers of SHEET GLASS can be supplied at the Soho Crown, Sheet, Ornamental, and Plate-glass Warehouse, 26, Soho-square, with BELGIAN SHEET GLASS, 16oz. to the foot, in cases containing 200 feet each, upon the following terms, for cash on delivery:—In parcels of ten cases, at 38*s.* per case; in parcels of five cases, 40*s.* per case; and single cases at 42*s.* per case. Squares cut to given size, 3*d.* per foot.

E. and W. H. JACKSON beg to call the attention of Builders and the trade to the low prices of their PATENT PLATE GLASS. BRITISH PLATE, silvered and for glazing, of unrivalled quality and finish. ROUGH PLATE, CROWN, SHEET, COLOURED, and ORNAMENTAL GLASS, in every variety, of the best manufacture, and at the lowest terms. List of prices, estimates, and every information sent on application. THE ROYAL ARMS, richly painted on glass,—size, 36 inches by 38,—well adapted for a public Company's Hall; to be seen at their warehouse, 315, Oxford-street.

GUTTA PERCHA TUBING.—May be buried for years, without injury, and it is therefore valuable for conveying water, chemicals, &c. It is peculiarly valuable for liquid manure, drain, and soil pipes. Being a non-conductor, it is not affected by the frost of winter or drought of summer, like metal or leather. Its strength is extraordinary; the small half-inch diameter tubing having resisted a pressure of 250 lbs. on the square inch, without bursting. The smaller sizes may be had in 100 feet, and the larger in 50 feet lengths. The joints are easily made. As a conductor of sound it is most valuable for conveying messages in lieu of bells. Every variety of articles manufactured by the Gutta Percha Company, Patentees, 18, Wharf-road, City-road, London; and sold by their wholesale dealers.

PATENT VULCANIZED INDIA-RUBBER TUBING, for Gas Fittings, Chemical Purposes, Fire Engines, Manure Pumps, &c.—JAMES LYNE HANCOCK, Sole Manufacturer (and Licensee), Goswell-mews, Goswell-road, London, begs to invite the attention of Architects, Builders, Engineers, and the trade generally, to the Vulcanised India-Rubber Tubing, which is now manufactured from 1-8-inch bore and upwards, in lengths from 50 to 100 feet, and of various strengths, suitable to the purposes for which it is applied. VULCANIZED HOSE for FIRE ENGINES, LIQUID MANURE, and for conveying HOT WATER to BATHS in DWELLING-HOUSES and BREWERIES, manufactured to resist great pressures of any length and size to order.

*** Testimonials may be had on application to the Manufactory.

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TO ARCHITECTS, BUILDERS, AND BRICK-MAKERS.

PUMPS of Superior CONSTRUCTION, bored perfectly true by improved machinery, in various plain and ornamental patterns for Conservatories, Squares, Market Places, Roads, Gardens, and for Liquid Manure. BRICK-MAKERS' PUMPS, in Wrought and Cast Iron, HYDRAULIC LIFT PUMPS, and ENGINES for Wells of any depth. SINGLE and DOUBLE PUMPS up to twelve-inch bore, kept for Hire.

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WARNER'S PATENT COUNTER BEER-ENGINE

is simple in construction, compact in form, durable, and of moderate cost; it is recommended for the use of Wine and Spirit Merchants, Brewers, Hotel Keepers, Railway Stations, &c., for raising Beer, Porter, Cider, and other liquors; also for Dwelling-houses, for raising Water to Washhand-stands, Butlers' Sinks, &c.

LIFT AND FORCE PUMPS AND GARDEN ENGINES

are constructed on the same principle.

WARNER'S PATENT TINNED LEAD PIPE, which resists the action of acids, is recommended for beer-engines.

Manufactured and supplied to the trade by the patentees, JOHN WARNER and SONS, 8, Crescent, Jewin-street, London.

May be had of all Plumbers.

PAPER-HANGINGS at E. T. ARCHER'S Manufactory for English, and Warehouse for English and French Paper-hangings, and all materials connected with the trade. The Panelled Decorations are fitted up on the walls of an extensive range of show-rooms, giving at one view a drawing or dining-room furnished fit for occupation.

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Painted marble, granite, and oak papers	1*d.* per yard.
Superior bed-room papers.....	1*d.* „
Satin ground papers for bed-rooms, drawing and dining rooms.....	3*d.* „
Flock papers on grounds, and crimson flock on oak	4*d.* „
Bronze drawing-room papers	9*d.* „
Rich gold paper	1*s.* 6*d.* „
Ditto and Flock	2*s.* 0*d.* „

10,000 feet of gilt mouldings always in stock.

E. T. ARCHER, 451, OXFORD-STREET, LONDON.

January, 1, 1850.

PIERCE'S NEWLY-INVENTED

PYRO-PNEUMATIC, PURE WARM AIR, SELF-ACTING, AND VENTILATING STOVE-GRATE,

ADAPTED FOR

CHURCHES, CHAPELS, INFANT AND OTHER SCHOOLS, PUBLIC BUILDINGS OR PRIVATE DWELLINGS, BANKING HOUSES, RAILWAY OFFICES, PICTURE GALLERIES, ENTRANCE HALLS, LECTURE ROOMS, INVALIDS' APARTMENTS, &c. &c.

OR ANY SITUATION OR PLACE THAT MAY REQUIRE WARMTH WITH VENTILATION.

This stove-grate possesses the cheerful open fire, and from the NOVELTY of its principle, ECONOMY in use, and ELEGANCE of design, renders it more suitable than any other where these advantages, combined with purity of atmosphere, are important. Price 7*l*., 9*l* 10s., 13*l*. 10s., and 16*l*. in plain design. It may be seen in daily use at the University Hall, Gordon-square; the Polytechnic Institution; the Giraffe House of Zoological Society, Regent's Park; Lloyd's Registry of Shipping, Cornhill; Guy's Hospital; the bank of Messrs Alexander and Co., Lombard-street; and at the Manufactory, 5, Jermyn-street; also at the Office of "The Builder," York-street, Covent Garden.

THESE NEWLY-INVENTED STOVE-GRATES have received the most favourable notices of the Public Press, for which see the Prospectus, with numerous testimonials, which will be forwarded on application, and every information afforded. Price 7*l*.; 9*l* 10s.; 13*l*. 10s. in plain designs.

PIERCE'S ECONOMICAL RADIATING STOVE-GRATES,

with ornamental hearths and fenders, quite unique, adapted to the decorations of any room for which they may be desired. Also his IMPROVED METHOD OF WARMING Churches, Mansions, Galleries, Staircases, and Entrance Halls by HOT WATER, whereby WARMTH is combined with VENTILATION, and the salubrity of the air produced from its use, with perfect safety from accident, have fully established its reputation. WARM BATHS fitted up from the boiler of the range, or a servant's room, which are always ready at a minute's notice. KITCHENS, LAUNDRIES, AND DRYING-ROOMS FITTED WITH EVERY IMPROVEMENT, and on the most economical arrangement.—N.B. Old Stoves modernized and altered to the above principle.

MANUFACTORY AND SHOW-ROOMS, 5, JERMYN STREET, REGENT-STREET.

SOLE AGENT FOR NICHOLSON'S PRIZE COTTAGERS' RANGE, NEW PATENT COOKING STOVE, and his recent IMPROVEMENTS IN STOVE GRATES, &c.

THE PATENT GALVANIZED IRON.

TUPPER and CARR,

Owners of Crauford's Patents, and Successors to

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Supply patent Galvanized Sheets, plain or corrugated, for roofing &c., Water or Gas Pipes, Castings, Wire of all gauges, Guttering, Hooping, &c. Wholesale, retail, and for export.

An allowance to the trade.

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WORKS,
BIRMINGHAM, late of Southwark.
JOHN H. PORTER,

Manufacturer of the Corrugated and other kinds of Iron Roofing for railway stations, carriage sheds, farm buildings, gas-works, warehouses, factories, &c. &c.

PATENTEE

Of the Corrugated Iron Beams, Girders, and Fire-proof Floors.

THE PATENT GALVANIZING and

CORRUGATING IRON COMPANY, Glasshouse-yard, opposite the principal entrance to the London Docks—Offices 12, Circus, Minories. J. SYMONDS and Co. Managers.

The proprietors have deemed it advisable to obtain a license to work Crawford's Patent, upon which they have made a very considerable improvement, and is acknowledged by the trade to be superior to any other process ever used. The facilities they possess in executing orders to any extent induce them to solicit the favours of contractors, builders, and others. On hand, for exportation or home consumption, patent galvanized plain and corrugated sheets, for iron houses, roofing, doors, verandahs, shutters, partitions, safety rooms, chests, &c., fitted. Iron guttering, water and gas pipes, hooping, wire of all sizes, chairs and seats for lawns, pleasure-grounds, and gardens, in great variety. Goods sent for and returned, free of charge, within three miles of the City; and all light goods received at the works by Nine in the morning, will be returned the same day if required.

A discount allowed to the trade.

THE attention of those who are interested

in Building is earnestly invited to a method of constructing the FLOORS, CEILINGS, and ROOFS of HOUSES on an IMPROVED FIRE-PROOF PRINCIPLE, the adoption of which secures many important advantages at a cost not greater than that of the common mode of building with timber. Perfect security from fire—economy of construction—freedom from the attacks of dry-rot, insects, &c.—and increased strength and durability, are the leading features of this system; a pamphlet fully descriptive of which, and all further information, may be obtained on application to the proprietors of the patent, Messrs. FOX and BARRETT, 44, Leicester-square, London.

IRON FOUNDRY, 80, Goswell-street (late of

Brick-lane, St. Luke's).—J. J. JONES having made great additions to his STOCK of PATTERNS, begs to inform the Trade, that he can now supply them with Plain and Ornamental Iron Columns, Girders, Railings, Gates, Iron Coping, Balconies, Window Guards, Verandahs, Ornamental Staircase Panels, Iron Staircases, Tomb Enclosures, Trellis Panelling, Lamp and other Brackets, Cantilevers, Newel Posts, Water Closet Work, Area Gratings, Fly and other Wheels, Wheel Plates, &c.

BAKERS' OVEN WORK, Forge Backs and Troughs, Rain Water Pipes and Gutters, Sash Weights, Furnace Bars, Stoves, Ranges, &c., always in stock.

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GLOVER, BROS.,

Solicit the attention of the Trade to their extensive Stock of PATTERNS for CASTINGS of EVERY DESCRIPTION, either structural or ornamental.

Patterns of Girders, Columns, Balconies, Railing, Ornamental Carriage and Park Gates, Lamp and Street Posts, Tanks, Pipes, Wheels, Pinions, Lathes, and Steam-engines; Range and Hot-plate Metal. An improved Soot Door adapted for internal work.

A large stock of Rain-water Pipes, Plain and O G Gutters, Air-bricks, Sash Weights, Air-tight Sewer Grates, Stable Fittings, Hurdles, &c.

Plain and Ornamental Vases 20 per cent. cheaper than Terra-cotta.

Estimates given for Iron Buildings, Wrought-iron Roofing, Greenhouses, Staircases, Wrought-iron Girders, Fireproof Doors, Book Safes and Strong Rooms, Tanks and Boilers and every description of ironwork to specification, and the work executed with every attention to quality and despatch.

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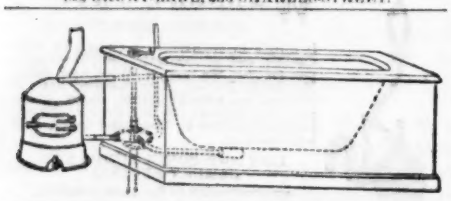

BATHS.—J. TYLOR and SON'S improved

APPARATUS, consisting of copper or galvanized iron baths, coated with enamelled white or Sienna marbles inside, copper circulating boiler, with three-way cock for hot, cold, and waste water, complete, is MOVEABLE, and does not require any BRICK-WORK. Manufacturers of every description of boilers and coil pipes for heating baths or public buildings, hospitals, union workhouses, asylums, &c.—Apply to Ironmongers or Plumbers, or to the Manufacturers, Warwick-lane, London.

CHUBBS' LOCKS, FIRE-PROOF SAFES, AND CASH BOXES.

CHUBBS' PATENT DETECTOR

LOCKS give perfect security from false keys and picklocks, and also detect any attempt to open them. They are made of all sizes, and for every purpose to which locks are applied, and are strong, secure, simple, and durable.

CHUBBS' PATENT LATCH, for front doors, counting-house doors, &c., is simple in construction, low in price, and quite secure. The keys are particularly neat and portable.

CHUBBS' PATENT FIRE-PROOF SAFES, BOOKCASES, CHESTS, &c., made entirely of strong wrought-iron, so as effectually to resist the falling of brick-work, timber, &c., in case of fire, and are also perfectly secure from the attacks of the most skilful burglars.

CHUBBS' CASH and DEED BOXES, fitted with the Detector Locks.

CHUBB and SON, 57, St. Paul's Churchyard, London.

FRENCH CASTINGS.—SAMUEL

HOOD and Co. respectfully invite the attention of Architects and others to their stock of French Castings, consisting of balcony panels, balconets, panels for gates, staircase bars, newells, knockers, &c. combining the greatest beauty of design, with economy of material.—Castings Warehouse, 81, Upper Thames-street.

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IRON PIPES for hot-water circulation, with

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WEEKS and Co., KING'S-ROAD, CHELSEA, solicit the honour of Architects to inspect their Hot-Water Apparatus, which is to be seen on their premises, in extensive operation Ornamental Pedestals and Stacks of Pipes in great variety, applicable for warming churches, mansions, entrance-halls, offices, conservatories, &c.—TUBULAR BOILERS of all sizes, warranted to be the most efficient and economical of any yet introduced.—J. WEEKS and Co., Hot-Water Apparatus Manufacturers, King's-road, Chelsea.

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Elliptic Stoves, double backs, 2½d. per inch.
Register Stoves, 5d. 6d. 6½d. 7½d. per inch.
Self-acting Ranges, with circular ovens and back boilers, best wrought bars and bright fittings—

3 ft., 2*l*. 18s. 3 ft. 6 in., 3*l*. 7s. 4 ft., 3*l*. 15s.

3-feet Cottage Ranges, with ovens and back boilers, 33s. each.
3-feet self-acting ditto, ditto ..... 35s. each.
Air Bricks, 3s. 6d. per doz.—1-inch Cut Lath Nails, 13s. 6d. per cwt.
Best Patent Cut Clasp.

1½	1¾	2	2½	3 inch and larger,
14s. 6d.	14s.	13s.	12s. 6d.	12s. per cwt.

Best Sheet Floor Brads, 11s. 6d. per cwt.
Best Town Glue, 38s. Ditto, Scotch, 52s. per cwt.
Best Patent Sash Line.

1	2	3	4	5	6
4s.	4s. 6d.	5s. 6d.	7s.	8s.	10s. 6d. per gross.

At F. B. WILLIAMSON'S IRONMONGERY and STOVE WAREHOUSE, 35, Chiswell-street, Finsbury-square.
Lists of Prices had on application at the Warehouse, or by letter, pre-paid, inclosing postage stamp.—Warehouse closes at 7 o'clock.

TO BUILDERS, CABINET-MAKERS,

and OTHERS.

Best Cut Sheet Flooring Brads, 11s. 6d. per cwt.
Fine Cut Clasp and Rose.

14s. 6d.	14s. 6d.	13s. 6d.	12s.	12s. 6d. per cwt.
1½	1¾	2	2½	3 inch.

Cross Garnet Hinges, per dozen pair.

2s. 9d.	3s. 3d.	4s. 3d.	5s.	6s.	8s.
10	12	14	16	18	20 in.

Best Bright Tower Bolts, per doz.

1s. 3d.	1s. 7d.	2s.	2s. 6d.	2s.	10d.	3s.	3d.	3s. 7d.
3	4	5	6	7	8	9 in.		

Iron Rain-water Pipe.

9d.	10d.	1s. 1d.	1s. 5d.	1s. 8d. per yard.
2	2½	3	3½	4 inch.

Best London Glue, 38s. per cwt.
Cast Lath Nails, 10s. per cwt.
Air Bricks, 3s. 6d. per doz.
Hooping for bond, 8*l*. 10s. per ton.
Sash Weights, 5s. per cwt.
TERMS—NET CASH.
A price-list may be had on application.

A. L. PFEIL and Co.,
Wholesale Ironmongers, Brass Foundry and Nail Warehouse,
5 and 6, Broad-street, Bloomsbury, London.
AGENTS FOR LEA'S PATENT MORTISE LOCKS AND BOLTS.

CLARK and HUNT'S IRONMONGERY,

STOVE and METAL WAREHOUSE, 159, Shoreditch.
Strong Elliptic Stoves, with extra back, 2½d. per inch.
Register Stoves, 5d. per inch.
3-ft. Self-actin Cottage Ranges, with Oven and Boilers, 30s. each.
3-ft. Self-acting ditto, with wrought bars and bright fittings, 38s. ea.

Cast Rain-water Pipe	2	2½	3 inch.
	8d.	10d.	1s. per yard.

Cast Gutters—4 inch, 8d. per yard.

O.G. Gutters	4	4½ inch.
	11d.	1s. per yard.

Best Cut Clasp and Rose	1½	1¾	2	2½	3 inch.
	14s. 6d.	14s.	13s. 6d.	13s.	12s. per cwt.

Sheet Flooring Brads, 11s. 6d. per cwt.
1-inch Cut Lath, 14s. Cast Lath, 9s. 6d.
6-inch 3-Bolt Rd. Ward Mortice, with best Furniture and Patent Spindles, 2s. 9d.
Light Elliptic and Register Metal, 12s. per cwt.
Hot Water Pipes, 8s. 6d. per cwt.
Dr. Arnott's Ventilators, 5s. each.
An extensive stock of bar, rod, hoop, and sheet iron.

TO BUILDERS AND CARPENTERS, &c.

J. H. BOOBBYER and CO., late Sturch

and Boobbyer, Ironmongery, Brass Foundry, Nail, and Tool Warehouse, No. 14, Stannhope-street, Clare-market, London, for the supply of Carpenters, Builders, Cabinet-makers, Upholders, &c., at wholesale prices.

Best Cut Sheet Flooring Brads, 11s. 6d. per cwt.
Fine Cut Clasp and Rose.

14s. 6d.	14s. 6d.	13s. 6d.	13s.	12s. 6d. per cwt.
1½	1¾	2	2½	3 inch.

Best Bright Tower Bolts.

1s. 3d.	1s. 7d.	2s. 2d.	2s. 6d. per dozen.
3	4	5	6 inch.

Best Patent Sash Line.

4s.	4s. 6d.	5s. 6d.	7s.	8s.	10s. 6d. per gross.
No. 1	2	3	4	5	6

Cast Lath Nails, 10s. per cwt. Air Bricks, 3s. 6d. per dozen.

DR. ARNOTT'S VENTILATORS.

10 by 8 inches	5s. each.
16 by 9 "	8s. "

An assortment in Brass, Bronzed, Gilt, &c.

An extensive stock of Mortise Locks, Drawback Locks, Iron Rim Locks, and Latches, of every description, at very reduced prices; also Door Furniture, in china, amber, crystal, ivory, ebony, buffalo, horn, brass, &c., with Finger-plates, Bell-pulls, and Levers *en suite*.

B. and Co. are the inventors of SHIFTING BOLT MORTISE LOCKS, &c., so universally approved of.—Established nearly 200 years, for the supply of goods from the best manufactories at the lowest prices.

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A QUANTITY of RAILING BARS to

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GREAT FIRES in MARK-LANE and

SOUTHAMPTON-STREET, STRAND.—In these destructive Fires Deeds and Documents of immense value have been preserved uninjured by "LEADBEATER'S PATENT FIRE-PROOF SAFES." LEADBEATER'S STRONG WROUGHT-IRON FIRE-PROOF BOOK SAFES, CHESTS, and DOORS, for Strong Rooms, Plate Closets, and Party-walls, &c., of best make, and possessing all the most recent improvements, are the best depositories for property of every description in the world; extra-strong Cash and Deed Boxes, with Detector Locks; Patent Detector Locks and Latches for all purposes. LEADBEATER, PATENTEE and MANUFACTURER of the much approved Ventilating and Down-draught preventing CHIMNEY-POT. This desirable article is found to be the most effectual cure for Smoky Chimneys ever yet before the public, and is adapted to every style of Architecture.

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LEADBEATER, many years Manufacturer for Chubb.

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facturing Ironmongers, Nos. 83, 54, and 55, Wych-street, Strand. Established 1819. Proprietors and sole Manufacturers of PITT'S PATENT SELF-ADJUSTING DOOR FURNITURE and SPINDLES, and Manufacturers of Dr. ARNOTT'S VENTILATING CHIMNEY VALVES.

HART and SONS solicit the attention of Builders, House Decorators, Smiths, Bell-hangers, &c. &c. to their extensive and well selected stock of DOOR FURNITURE in every suitable material, *en suite* with finger-plates, bell-pulls, levers, &c., and also to their

LOCKS and LATCHES in mortice, rim, drawback, iron gate, cabinet &c., of all qualities, including Barron's, Bramah's, Chubb's, and Pitt's Patent—To their

GENERAL IRONMONGERY wrought and cut nails, screws, hinges, bolts, &c. &c.

BRASS FOUNDRY—Bell cranks of all descriptions, cornice poles, picture rods, skew door handles, desk and hat rails, window guards, Espagnolette bolts, &c. &c.

WINDOW FITTINGS of all kinds, including brackets, rods, arms, sliding sockets, trays, &c. &c.

DOOR SPRINGS and HINGES, including Redmund's, Smith's, Collinge's, Gerish's, and Cotterell's patents.

WINDOW BLIND FITTINGS of the most approved principle.

SHERINGHAM'S and all other VENTILATORS.

LEA'S RACK BOLT MORTICE LOCKS, for which they are AGENTS, as well as for all inventions of merit as soon as perfected.

HART and SONS, aware that the practice of publishing NET price-lists is injurious to the interests of the trade generally, are unwilling to follow it, but at the same time they beg to assure their friends that their prices will be found equally as low as those of any other respectable house.

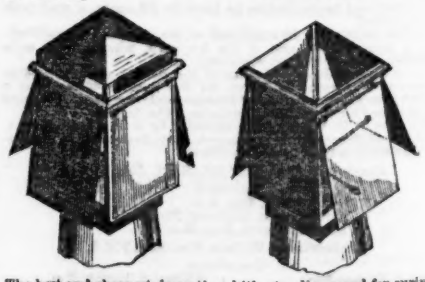
SMOKY CHIMNEYS EFFECTUALLY

CURED.—WILSON and CO.'s PATENT CHIMNEY POTS for the Cure of Smoky Chimneys have been extensively tested throughout the kingdom for the last five years, and have proved an effectual remedy in many cases where other inventions have failed. They are manufactured of artificial stone cement or zinc, and may be had at the manufactory, 1, Vale-place, Hammersmith, Middlesex. Prices and prospectuses forwarded by return of post.

N.B.—J. W. and Co. will contract for the Cure of Smoky Chimneys on the terms of "No Cure no Pay."

CABLE'S FUMI PORTE, or Improved

CHIMNEY-TOP and VENTILATOR. Registered by Act 6 & 7 Vict. cap. 65.



The best and cheapest invention hitherto discovered for curing Smoky Chimneys.

Licenses granted to the trade by labels, at per dozen.

Sold by LAWRENCE and CO., 55, Parliament-street, Westminster; the Agents to the Inventors and Manufacturers also; and Dealers in Zinc, &c:—Fumis, 15s.; Chimney Shafts, 1s. per foot. Various sorts of chimney cowls and tops; perforated zinc, in sheets, 3½d. per foot; rain-pipe, 3 in., 4d. per foot; bell tube, 3½d. per lb. Baths, windows, skylights, drawn bar, &c. &c. to order. Zinc or brass plates supplied or engraved in best manner. Spelter and sheet zinc at lowest market prices.

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STIRLING'S BELVEDERE SLATE

WORKS, Belvedere-road, Lambeth.—A reduced list of prices of the best WELCH SLATE SLABS, planed both faces, will be sent on application (post paid) being made, and inclosing a postage stamp. The prices are under those advertised for inferior slates.